1990-1994

PM USA R&D

STRATEGIC PLAN

February 5, 1990

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Summary and Plan

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Executive Summary

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EXECUTIVE SUMMARY

The 1989 PM USA R&D Five Year Strategic Plan is based on thorough analysis of the **PM USA five year goals;** our **current environment,** including our competitors, suppliers, and available technology; and the **future factors** which are anticipated to impact our business during the plan period. PM USA will face significant challenges in the coming five year period. Of these challenges, twenty-four have been identified which have the potential of significantly impacting R&D programs and resources. Those challenges can be classified into six major areas, namely:

1. Competitive Pressures
2. Social & Political Influences
3. Market Dynamics
4. Reliance of R&D on Suppliers
5. Internal Environment
6. External Factors

For each factor, the most likely scenario was identified. Alternate scenarios are also provided where appropriate. Based on the consideration of all of these factors listed above, six strategic goals were formulated:

1. **AGGRESSIVELY SUPPORT THE CURRENT BUSINESS.**

2. **DEVELOP PRODUCTS WHICH ADDRESS THE CONSUMER'S DESIRE TO REDUCE THEIR HEALTH CONCERNS.**

3. **DEVELOP PRODUCTS WHICH ADDRESS THE PUBLIC'S DESIRE TO REDUCE ENVIRONMENTAL TOBACCO SMOKE.**

4. **DEVELOP PRODUCTS WHICH WILL INCREASE OUR VOLUME AT THE EXPENSE OF OUR COMPETITORS TO GIVE US OUR "FAIR SHARE."**

5. **IDENTIFY NEW PRODUCT/PROCESS CONCEPTS AND DEVELOP PRODUCTS/PROCESSES FOR THE INTERNATIONAL MARKET.**

6. **PROVIDE A BROAD FOUNDATION OF BASIC RESEARCH THAT WILL GENERATE NEW PRODUCT CONCEPTS IN 5-15 YEARS.**

These strategic goals were developed around two focal points: **our current business** and **our future business.** Generally, Goals 1, 4 and 5 focus on R&D support of our current business, while Goals 2, 3 and 6 focus on our future business and ability to meet the PM USA five year goals. The R&D programs, both current and planned, needed to address these goals are also outlined. Resource allocations essential to the implementation of the R&D Five Year Strategic Plan are provided for each R&D program for the five year period. Execution of the proposed programs will result in a significant R&D contribution to the realization of the PM USA goals.

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The plan recommends an increase of 49 in the R&D headcount over the five year period. This increase is necessary both to carry out programs leading to new products which will fuel the growth of PM USA in the future, as well as for support of those new products which we anticipate introducing in the next two years.

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Plan

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A. R&D MISSION STATEMENT

Philip Morris USA is in the tobacco products business and is the number one cigarette company in the United States. Our continued success through growth and in profitability are dependent upon the recognition of the consumers' present and future wants and needs as well as the improvement of our competitive advantage in the industry. We must offer the consumer the highest quality, most satisfying flavor and most technolgically advanced tobacco products while striving to be the low cost industry producer.

To support the above Company mission, R&D has three main responsibilities:

1. **Our first responsibility is to protect our present product lines. The current market share must be protected. R&D will initiate new concepts and programs that will improve the existing products and processes of manufacturing which will result in continued brand loyalty, brand extensions and low cost production.**

2. **Our second responsibility is to develop new technology-driven products that will satisfy future customer wants and external requirements. These products will be in the areas of environmental smoke reductions, health concerns, unique flavors, reduced nicotine, fire safety, biological activity, and other innovative products which will capture new volume and market share of 50% by 1995.**

3. **Our third responsibility is to serve as the technology storehouse for the Corporation in order to accomplish the first two responsibilities.**

B. SITUATIONAL ANALYSIS

Situational Analysis is divided into two parts - internal and external. The internal analysis covers PM USA R&D and PM Europe R&D programs. External analysis covers competitors, social and political influences, suppliers, and technology assessment.

1. Internal Analysis

PM USA R&D

The 1989 PM USA R&D major programs were formulated at the December, 1988, R&D Quarterly Planning Conference. The following 13 major programs were approved for 1989 at that Conference:

1. Project ART

2. Project Sigma

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3. Domestic Product Support

4. International Product Support

5. Operations Support

6. Reduced Density Rod

7. Filtration Research

8. Paper Technology/Reduced Sidestream

9. Project Tomorrow

10. Optical Processing

11. Low Tar/High Flavor

12. Tobacco Specific Nitrosamines (TSNA)

13. Lowered Biological Activity (LBA)

One program which had been classified as "major" in 1988, Alternate Humectants, was placed under Operations Support for 1989. This program was nearing completion by the end of 1988, and the level of resources it would require during 1989 no longer justified its classification as a major program. The Reduced Sidestream program was broadened and retitled Paper Technology/Reduced Sidestream. In addition to Reduced Sidestream this program includes all aspects of cigarette paper R&D including portions of Project Sigma and Project Tomorrow as well as Project Ambrosia. One program was added during 1989; namely, Project PACT. Project PACT is a proactive program directed toward the development of efficient room air handling systems in order to minimize the effects of environmental tobacco smoke in public places. This program was added at the request of the Corporate Affairs Department.

In addition to the major programs, a percentage of the R&D staff is devoted to "other programs." These programs, which generally have only a few individuals assigned to each program, are of two types. The first type includes small projects which are necessary to support our current business, while the second type includes long-term research efforts which are anticipated to develop into major programs in the future. It is important to stress that these other programs are as important to the fulfillment of PM USA's R&D goals as are the major programs. **All of PM USA R&D's programs are designed to support the PM USA R&D Strategic Plan.**

A comparison of R&D program direct resource allocations for 1988 and 1989 as a percentage of R&D staff is given in Table 1. Also given in Table 1 are the predicted resource allocations for 1989 which were estimated in 1988. Directly allocated resources were used since they can be obtained

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TABLE 1

Comparison of Directly Allocated Resources, 1988 to 1989
(Percentage of R&D Staff)

	1988 (Actual) (%)	1989 (Actual) (%)	1989 (Est.) (%)
Project ART	10.4	14.3	10.3
Project Sigma	12.0	10.0	15.0
Domestic Product Support	13.8	12.1	9.8
International Product Support*	8.7	10.6	6.2
Operations Support	12.3	12.8	12.7
Reduced Density Rod	7.0	4.7	6.7
Filtration Research	2.2	3.1	3.2
Paper Tech./Reduced Sidestream	7.0	10.5	8.0
Project Tomorrow	1.3	1.1	2.6
Optical Processing	1.2	1.5	1.8
Low Tar/High Flavor	3.9	2.2	2.3
TSNA	3.1	5.2	4.6
LBA	2.9	3.2	3.6
Other Programs	13.5	8.7	13.0

*Includes QZ personnel

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more accurately. Inspection of Table 1 shows that there are two programs which have significantly more resources devoted to them in 1989 than in 1988. These two programs are Project ART and International Product Support. In retrospect these differences are not surprising. Preparing for the Project ART test market has required considerable R&D resources in order to address challenges involving both the process and the product. It should be noted that it is likely that considerable resources will continue to be devoted to Project ART for the next one to two years with respect to both process and product improvements. With respect to International Product Support, increasing international sales as well as new markets in the Far East have led to a significant increase in international product development. This trend is expected to continue for the next few years.

Significantly fewer resources than expected were allocated to Project Sigma and Other Programs. The withdrawal of Premier from the market place caused a change of emphasis in the Delta program. A decision was made to defer the introduction of Delta as an actual product and concentrate on research necessary to further improve it. The research and product development work now being pursued in this area was designated Project Sigma. Fewer resources were required to pursue this strategy. As far as Other Programs are concerned, the additional resources for Project ART and International Product Support coupled with the need to maintain the remaining major programs at the expected level forced a cutback.

Support was allocated to each program by each responsible manager based upon the best available information. In some cases, such as the Tobacco Processing Division (Semiworks), support was allocated to each major program based upon the percentage of requests from each major program. In other cases, such as the Computer Applications Division, support was allocated on a Divisional basis, and then reallocated by program based on the allocation for each Division. Table 2 shows the 1989 resource allocations for R&D programs giving direct resources, support and total resources.

Both Operations Support and Other Programs are composed of a number of small projects. Projects included under Operations Support are shown in Table 3 along with directly allocated resources. Projects included under Other Programs are shown in Table 4. It has already been pointed out that the number of resources allocated for Other Programs has decreased significantly in 1989. The two Divisions that have experienced the greatest decline in resources allocated to Other Programs are Analytical Research and Development Engineering. For both Divisions virtually all of the resources devoted to Other Programs in 1988 were devoted to Project ART in 1989. There was also a net decrease of 5.0 individuals in Biochemical Research brought about by the decision to include a Project designated as "Natural Products Research" in 1988 as part of the Operations Support Program.

PM USA R&D has continued to work collaboratively with outside scientists both at universities and small high technology companies. The support of outside programs declined from 1988 and is expected to decrease somewhat further in 1990, although commitments for Project Beta could cause

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TABLE 2

Total Resource Allocations for PM USA R&D Programs
Calendar 1989
(Numbers of individuals[1])

	Direct	Support	Total	%
Project ART	60.45	21.35	81.80	14.5
Project Sigma/Beta	42.00	10.10	52.10	9.2
Domestic Product Support	50.95	20.65	71.60	12.7
International Prod. Support[2]	44.65	9.00	53.65	9.5
Operations Support	53.85	28.70	82.55	14.7
Reduced Density Rod	20.00	5.30	25.30	4.5
Filtration Research	13.15	3.60	16.75	3.0
Paper Tech./Red. Sidestream	44.45	15.05	59.50	10.6
Project Tomorrow	4.75	1.90	6.65	1.2
Optical Processing	6.30	1.40	7.70	1.4
Low Tar/High Flavor	9.45	3.15	12.60	2.2
TSNA	21.80	4.90	26.70	4.7
LBA	13.55	3.05	16.60	2.9
Other Programs	36.65	12.85	49.50	8.8
	422.00	141.00	563.00	99.9

1. Excludes 43 executive and administrative personnel

2. Includes 9Z personnel

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TABLE 3

Distribution of Directly Allocated Resource Allocations for the Operations Support Program

	No. of Personnel	%
Semiworks Support	5.00	9.3
New Tobacco Processes	3.75	7.0
Tobacco Sheet Improvements	1.50	2.8
Burley Spray	1.00	1.8
Tobacco Microbiology	5.00	9.3
Entomology	4.00	7.4
Alternate Preservatives	5.00	9.3
Alternate Humectants	2.00	3.7
Materials Evaluation	2.00	3.7
Customer Complaints	1.00	1.8
ETS	6.00	11.1
Analytical Flavor Specifications	5.30	9.9
Support the Current Business	12.30	22.8
Total	53.85	99.9

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TABLE 4

Summary of Other Programs by Division

Division	Program	Resource Allocation
Flavor Development	Tobacco Flavor Investigations and Development	2.25
Cigarette Technology	New Product Concepts/New Packaging Concepts	1.05
	Tipping Paper Evaluations	0.60
	Lab Instrument Maintenance	0.10
	Large Scale Equipment Maintenance	0.50
Biochemical Research	Electrophysiological Studies	2.00
	Immunochemical Studies	1.50
Physical Research	Aerosol Research	2.25
	Menthol Research	1.75
Chemical Research	Flavor Research	4.40
	Separation Methods R&D	0.40
	Tamper Evident Packaging	0.10
	Cooperative Programs with Leaf Department	0.75
	MDL/MACCS Coordination	0.30
	Department Radiation Safety Officer	1.00
Development Engineering	C Pilot Plant Rebuild	1.25
Tobacco Fundamentals	Firmness while Smoking	1.00
Product Development	Special Projects	1.00

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TABLE 4 (Continued)

Division	Program	Resource Allocation
Tobacco Materials	Foam Bonded Ends	1.35
	Expanded Tobacco Technology and DIET	0.80
	Hauni HT Evaluation	0.85
	Stem Processing	1.35
	C Pilot Plant Rebuild	0.30
Computer Applications	Molecular Modelling	1.00
	Expert Systems	0.90
	Neural Networks	0.60
	Technology Assessment	0.30
Product Evaluation	Smoking Behavior	0.40
	Models of Human Perception	0.40
	Non-Menthol Mapping	0.20
Various		5.75
Total		36.65

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an increase. The collaborative research programs for 1989 as well as those budgeted for 1990 are summarized in Table 5.

During the period July 1, 1988, to July 1, 1989, PM USA R&D and PM USA Engineering have been active with respect to both patents and publications. A total of 9 US Patents and 18 European Patent Office Publications issued during this period. These patents cover a wide area ranging from flavor-release compounds to new cigarette making equipment. Twenty-seven publications appeared during this same period of time. The publications can be classified into five major areas; namely, sensory analysis, analytical chemistry, physical organic chemistry, biochemistry and radiochemistry.

PM Europe R&D

PM Europe R&D continues to expand the number of systems in place for monitoring cigarettes and key cigarette components. Most recently they have installed a system to monitor cigarette firmness exit the factory, and filter RTD's and diameters from each European factory. More importantly from a strategic planning point of view they are in the process of establishing a three way computer network with an appropriate data base involving R&D, marketing and manufacturing. This system, when complete, will allow each of these three Departments to respond rapidly to opportunities and challenges.

A mechanism has been established to allow more meaningful collaboration between PM Europe R&D and PM USA R&D. The key objectives of this collaboration are to: 1) discuss the applicability of PM USA R&D product development to PM Europe; 2) discuss the applicability of PM Europe product development to PM USA; and 3) identify specific areas of interest to PM Europe which require significant research. At this time the American and European markets are quite different, and there is little overlap in new product concepts. On the other hand, a number of areas have been identified wherein PM USA R&D can make a significant contribution through its research programs. The first of these is in the area of selective filtration, particularly with respect to carbon monoxide and nitrogen oxides. The second is the impact of cigarette and sidestream aroma on the subjective experience of smoking. This area complements work that is being initiated at PM USA R&D on Project Ambrosia, and close communication between key individuals in both USA and Europe will be maintained.

A copy of the PM Europe R&D Strategic Plan is included in Appendix A.

2. External Analysis

Competitive Analysis

We have expanded our competitive analysis to include Japan Tobacco Inc. (JTI) as well as RJR and BAT. Nothing in the past year has led us to alter our opinion that the other three domestic tobacco companies, American Brands, Lorillard and Liggett, do not represent a competitive challenge,

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TABLE 5

PM USA R&D Collaborative Research Programs

Program Description	Location	Budgeted Amount ($000)	
		1989	1990
Heat Sources/Combustion Modeling	NY Polytechnic	907.0	579.0
Project Delta/Sigma	Stone Products	100.0	70.0
Project Beta	Pinnacle Research	203.0	200.0
Project Beta	Motorola	200.0	200.0
Gustatory and Olfactory Research	Monell	32.0	0
Localization of Nicotine in Tobacco	Cambridge Univ.	55.1	8.5
Use of MS/MS	Univ. of Nebraska/ Univ. of Pittsburgh	3.0	0
Study of CO Sensors	VCU	13.2	0
Nornicotine Determinations	Cumberland Consulting Chemists, Inc.	8.9	0
Preparation of Nicotine Antibody	Litron Laboratories	19.9	26.5
Two Dimensional Gel Electrophoresis	PDI	20.0	9.5
cDNA Expression Library	Various	5.0	16.0
Protein Sequencing	Various	4.5	4.5
Pesticide Work	Tobacco Pesticide Group	4.0	0
Neutron Radiography	University of Va.	142.0	180.0
Sol-Gel Research	NY Polytechnic	135.0	135.0
Low Level Counting	Battelle NW	20.0	15.0

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TABLE 5

PM USA R&D Collaborative Research Programs
(Continued)

Program Description	Location	Budgeted Amount ($000)	
		1989	1990
Lumen Loading	Univ. of Washington	18.0	0
Sol-Gel Analysis	VPI	58.2	90.0
Paper Technology	Univ. of Maine	60.0	60.0
Menthol Release	Callery Chem/Lee Labs	77.0	124.0
Custom Synthesis	VCU	0	18.0
X-Ray Crystallography	Oneida Labs	0	25.0
Cluster Formation (Aerosols)	Colorado State	109.5	112.0
Project Beta	Brandervision	12.0	0
Oxidation Catalysts	Seton Hall Univ.	127.9	76.1
Project Sigma	Procedyne	25.8	0
Optical Processing	Carnegie-Mellon	54.4	54.4
Dynamic Nuclear Polarization	Colorado State	47.6	0
Simulation of Liquids & Aerosols	VPI	38.7	57.0
Thermodynamic Properties of Supercritical Fluids	Georgia Tech.	12.0	12.5
Supercritical Extraction	Supercritical Proc. Inc.	49.6	16.0
Project ART Water Column	University of Texas	27.5	27.5
Project Sigma/Beta	Laser and Mechanical Systems	5.0	5.0

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TABLE 5

PM USA R&D Collaborative Research Programs
(Continued)

Program Description	Location	Budgeted Amount ($000)	
		1989	1990
Optical Processing	Unicorn Systems	1.2	0
Project Sigma Development	Stackpole Company	234.4	191.0
Circuit Design - Project Beta		0	10.0
Heater Design - Project Beta		0	60.0
Project Pact		0	12.6
Corrosion Research	Dupont Safety Mgmt.	15.0	0
ART Pilot Plant Design		9.9	0
Corrosion Studies	University of Va.	9.6	0
Carbon for Plug-Space-Plug Filter	Stackpole Company	55.0	0
R&D Computer Operations	Index Group	44.0	0
Engineering Services	Nolen, Friska Brooks	16.0	16.0
Emergency Response Team	FDM Safety Services	22.0	20.0
Contract Programming	Computer Horizons	50.0	0
Contract Programming	McKinney & Assoc.	29.0	0
Contract Programming	Fortex	25.0	0
Contract Programming	Various	0	7.5
Total		**3106.3**	**2438.6**

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despite the introduction of a new brand with a citrus odor in the sidestream from Lorillard. This conclusion can now be supported by hard information obtained from Schonfeld & Associates, a research organization based in Evanston, Illinois, on R&D budgets for these three companies. According to their data American had an R&D budget of $17.9 million, Lorillard a budget of $11.1 million and Liggett an R&D budget of $30.7 million. The Liggett number is somewhat surprising, particularly since it represents 13.7% of sales and 21.9% of margin. Nevertheless, the R&D resources for these three companies clearly preclude their ability to do much more than support current business or carry out short-term research at this time.

We have increased our effort in monitoring our competitors. We have requested that Departments outside of R&D, particularly Leaf, Purchasing and Employee Relations (Employment) provide us with any competitive information they may acquire. We are working with other PM Companies, particularly General Foods, to refine our competitive analysis effort. Also the senior scientific staff is monitoring competitor's patents and patent applications, where possible, on a quarterly basis in order to be able to identify potential new products and processes rapidly.

Competitive Analysis - RJR Tobacco

Highlights

The major highlights with regard to RJR Tobacco have been the withdrawal of Premier from the market place, the introduction of two new products, Vantage Excel and Chelsea, the willingness of RJR's new management to compromise quality in order to reduce costs, and the recently announced layoffs.

In February, 1989, RJR announced that they were withdrawing Premier from test market. There were three clear reasons for this decision. The first was the extremely poor performance of the product in the market place. The second was Kohlberg, Kravis and Roberts' (KKR) need to cut expenditures in order to meet debt payments. The last was the continued and violent opposition of anti-smoking groups. Despite the withdrawal of the product, however, the evidence indicates that RJR continues to work on Premier. We obtained information that RJR Tobacco might be working in conjunction with Mitsubishi Corporation on Premier. Further research revealed that Reynolds and Mitsubishi established a joint venture for cigarette sales, promotion and merchandising in Japan in 1984, and that cooperative efforts between the two companies predates the joint venture. However, there seems to be no firm evidence that they are working together on Premier. A full report on Mitsubishi Corporation, including information on its joint venture with RJR Tobacco, is included as Appendix B.

In December, 1988, Reynolds introduced a low sidestream product, Vantage Excel, in three test markets - New Orleans, Little Rock, and Detroit. This product was advertised as being lower in smoke than the leading 100 mm light cigarette. The technology used to achieve the decrease

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in visible smoke was the use of a low sidestream cigarette wrapper containing magnesium hydroxide developed by Ecusta. Vantage Excel has significant subjective problems with regard to both taste and ash appearance quite characteristic of cigarettes made with magnesium hydroxide wrappers. Sales and consumer acceptance of the product have been low, and the product was withdrawn in December, 1989.

In April, 1989, Reynolds introduced Chelsea as "the first cigarette that smells good" into three test markets, Southern Florida, Eastern Pennsylvania, and Nevada. Chelsea utilizes paper coated with a compound which releases a vanilla aroma into the sidestream smoke. The compound itself is not novel, and the use of this compound to modify sidestream aroma by coating it on to cigarette paper was patented by Ecusta in February, 1989. RJR has exclusive use of the two compounds patented by Ecusta which result in a vanilla aroma. Although we have not been able to obtain any good quantitative data on the performance of Chelsea in the test market cities, indications are that it is not doing well.

Reynolds has recently taken two steps to cut costs which may adversely affect the quality of their products. The more important step is that they have reduced the weight of tobacco in all of their brands by an average of about 4-5%. This will of course reduce cigarette firmness. Secondly, they are now using a part wood pulp paper for their value priced and generic brands. It is not clear at this time whether this change will have any discernable effect on product quality.

On August 11, 1989, Reynolds Tobacco announced the elimination of 1525 full-time jobs, about 13% of their work force. This action was announced to be a consequence of a $300 million loss during the second quarter. This cut in personnel will affect 825 office workers and 700 factory workers. The company has not disclosed which departments will be affected. However, the Wall Street Journal reported that there would be fewer than 100 people released from R&D, while the Greensboro News & Record indicated that the 50 person engineering staff has been cut in half. The Wall Street Journal also pointed out that the cut in R&D was approximately half of what was expected. We have heard various estimates from a number of sources regarding the number of cuts at R&D. However, the most reliable information indicates that approximately eighty individuals have been released from R&D, most of whom are either young Ph.D.'s or technicians.

R&D Organization

The 1988 PM USA R&D Strategic Plan indicated that the RJR Tobacco R&D staff consisted of 736 individuals, 408 of which were professionals and 328, technicians and support personnel. More recent information indicates that the total staff was between 800 and 850 before the cuts.

Information on RJR Tobacco's R&D budget has always been difficult to obtain, and will be more difficult to obtain now since RJR is no longer a publicly held company. Schonfeld & Associates lists budget data for RJR

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through 1988. The R&D budget quoted for RJR Nabisco in 1988 was $469.0 million; however, data are not given for individual operating units. If the assumption is made that the ratio of RJR to Nabisco was the same after the merger as before (about 1:4), then RJR Tobacco's R&D budget would have been $93.8 million in 1988. It is likely that this is a conservative estimate.

We have continued to expand our organizational charts for the RJR Tobacco R&D Center. These charts which list approximately 60% of their R&D professionals are shown in Appendix C. Their R&D Center is divided into four Departments, each headed by a Vice President who reports to Bob DiMarco, Senior Vice President of R&D. The four Vice Presidents are A. W. Hayes, Vice President of Biological R&D; M. E. Stowe, Vice President of Product & Applied Technology; R. A. Lloyd, Vice President of New Product Technologies; and W. M. Hildebolt, Vice President of Administrative & Technical Services. Biological R&D is divided into two Directorates, Biobehavioral & Sensory Evaluation and Toxicology Research. Biobehavioral & Sensory Evaluation encompasses three Divisions - Environmental Tobacco Smoke, Sensory Evaluation, and Biobehavioral Research; while Toxicology Research consists of two Divisions - Toxicology Research and Biochemistry/ Microbiology. Product & Applied Technology is divided into three Directorates, Brands Technology, Brands R&D and Basic Research. Brands Technology consists of two Divisions - Product Design Technology and Flavor Technology; Brands R&D is divided into three Divisions - Tobacco Standards, Brands R&D and Statistics; while Basic Research includes three Divisions - Analytical Chemistry, Aerosol Research and Chemical Research. New Product Technologies is divided into two Directorates, Product Technology & Development and Process Technology & Development. Product Technology & Development encompasses four Divisions - Mechanical Fabrication, Packaging Engineering, Materials Development, and Development; while Process Technology & Development also consists of four Divisions - Process R&D, Manufacturing Process Engineering, Process Development and Process Engineering. Lastly, Administrative & Technical Services is divided into two Directorates, Administrative Services & Agricultural Science and Technical Services. Administrative Services & Agricultural Science is divided into three Divisions - Safety/Maintenance Engineering, Agronomy, and Entomology; and Technical Services also includes three Divisions - Scientific Information, Statistics Support and R&D Planning. Also included in Appendix C is a description of the RJR Tobacco R&D dual ladder system.

Two changes at RJR Tobacco deserve special mention. The first is that the company announced that they have revamped its marketing department to establish "new brand team assignments [that] will integrate the efforts of brand marketing with support departments." Each team will include a marketing-information specialist, a finance manager, a sales planning manager, a research and development specialist, a manufacturing specialist and an engineering specialist. Inclusion of R&D personnel on each brand "team" may increase the effectiveness of the R&D/Marketing interface and increase the effectiveness of R&D at RJR Tobacco.

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The second change involves the recent addition of an individual to the RJR Tobacco R&D staff to head a competitive analysis and planning group. We have heard that the individual taking this position is a former CIA employee. A recent attempt made by RJR to acquire information about carbons being manufactured by the Stackpole Carbon Co. for PM would tend to confirm this rumor.

Patents and Publications

RJR Tobacco continues to patent aggressively. During the twelve month period between July, 1988, and July, 1989, twenty-seven US patents issued and fifteen European Patent Office applications were published. By far the largest category (40%) was related to Premier. The remainder fall into a large number of categories. There are only two patents which disclose potential new products. One of these (US 4,765,347) teaches a type of non-burning article; however, the technology used would be extremely difficult to execute, and it is unlikely that a workable product would result. The second (US 4,776,354) deals with a short cigarette which through giving fewer puffs achieves the goal of a "low tar cigarette" with increased tar per puff. Neither the idea nor the teachings in the patent appear novel. It is interesting that only one patent (US 4,821,747) and one European Patent Application (EPO 286,423) deal with new methods for expanding tobacco. The complete list of patents divided into subjects is shown in Table 6.

Only four of these patents deal with technology that is both new to and might be useful to PM. Three of these (US 4,768,526, US 4,770,193, and EPO 295,518) deal with novel methods of applying flavors to cigarette filters. The last (US 4,807,745) discloses a water impervious polymer laminate packaging material which is useful for cigarettes and other smoking articles. [A more recent European Patent Office Publication (300,734) describes an optical inspection system for cigarette packages which is state-of-the-art.]

One last note regarding the patents issued by RJR during the past twelve months is that one of these patents, a patent dealing with an improvement in their freon expanded tobacco process (US 4,821,747), was patented by two inventors both of whom reside in West Germany. This is the first clear evidence we have seen regarding an international R&D effort from RJR Tobacco.

Based on the number of publications and presentations (excluding TCRC presentations) from July, 1988, to July, 1989, publishing activity at RJR Tobacco is declining. During this period there were only 13 publications and presentations, none of which is dated any later than April, 1989. Eleven of these publications are in three categories; namely, flavor chemistry (5 publications), analytical chemistry (4 publications), and toxicology (2 publications). The remaining two papers are on ETS and behavioral research.

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TABLE 6

RJR Tobacco Patents from July, 1988, to July, 1989

Premier Related Patents
US Patents - 6
EPO Publications - 11

Reconstituted Tobacco
US Patents - 4

Expanded Tobacco
US Patents - 1
EPO Publications - 1

Dual Rod
US Patents - 1

"Ripper Shorts" Methodology
US Patents - 1

Sensory Evaluation
US Patents - 1

ETS Monitoring Device
US Patents - 1

Low Sidestream Cigarette
EPO Publications - 1

Addition of Flavors to Filters
US Patents - 2
EPO Publications - 1

Packaging
US Patents - 2

Adjustment of Nicotine Level
US Patents - 2

Tax Stamp Machine
US Patents - 1

Nonburning Article
US Patents - 1

Short Cigarette
US Patents - 1

Variable Dilution Filter
US Patents - 1

Optical Inspection
EPO Publications - 1

Computer Integrated Manufacturing System
US Patents - 1

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Board of Directors

As would be expected, the RJR Nabisco Board of Directors has changed considerably after the KKR takeover. The original base Board of Directors formed after the takeover consisted of Henry R. Kravis, Paul E. Raether, R. Theodore Ammon, Clifton S. Robbins, and Scott M. Stuart, all of KKR, and J. Paul Sticht, former Chairman and CEO, RJR Nabisco. Louis V. Gerstner, Jr., was added to the Board when he was named Chairman and CEO. Later additions to the Board were Karl von der Heyden, Executive Vice President and Chief Financial Officer, RJR Nabisco; Vernon E. Jordan, Jr., law partner in Akin, Gump, Strauss, Hauer and Feld; John G. Medlin, Jr., Chairman and CEO, First Wachovia Corp.; H. John Greeniaus, President and CEO, Nabisco Brands; James W. Johnston, President and CEO, RJR Tobacco, USA; and Rozanne L. Ridgway, President-Elect, Atlantic Council of the United States. Only J. Paul Sticht, Vernon E. Jordan, Jr., and John G. Medlin, Jr., are former members of the RJR Nabisco Board of Directors before the KKR takeover. It is interesting to note that those individuals with connections with high technology companies previously on the RJR Nabisco Board are no longer on the Board.

Strengths and Weaknesses

An analysis of the technical capability of the RJR R&D center through its publications and patents indicate that there have been few changes from the previous year. Based upon the meager number of true product patents, it would seem inappropriate to list product development as a RJR R&D strength. This conclusion is also corroborated by the, at best, incomplete product development work done by RJR Tobacco R&D on their two most recent products. Consequently, it has been deleted. On the other hand there is one weakness that no longer appears on the list; namely, computerization. RJR Tobacco has been extremely active during the last year acquiring in-house computer skills. Their increasing strength in the area of computerization is most likely an outgrowth of the development of a fully integrated computerized manufacturing system installed in Tobaccoville. The lists appear below.

Strengths

a. Analytical chemistry - RJR Tobacco R&D continues to demonstrate through publications high quality research in the area of state-of-the-art-instrumental analysis.

b. Toxicology - The published toxicological research on the condensate from Premier demonstrated that RJR Tobacco has a large, highly qualified toxicology research group. The work was outstanding.

c. Electrophysiology - The electrophysiology group appears to be remaining active. Three presentations were given at the Tenth Annual Meeting of the Association for Chemoreception

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Sciences, including one on the psychophysical and psycophysiological response to sidestream cigarette smoke.

d. Process development - Novel process development continues at RJR. The best example, as already mentioned, is their work on novel methods of introducing flavors into cigarette filters.

e. Extensive university and outside industrial contacts - Up until recently RJR has maintained their outside contacts discussed in last year's plan. There are signs, however, that these contacts may be reduced in the near future in order to cut costs. A contract with VPI&SU has already been eliminated, and it appears that collaborative work with Baylor University on nicotine antibodies will be terminated at the end of 1989.

Weaknesses

a. Organic and inorganic chemistry - RJR Tobacco R&D continues to depend primarily on outside expertise for basic organic and inorganic chemical research.

b. Physics - With the exception of an aerosol research group and an optical processing group, there is no evidence of physical research being carried out at RJR Tobacco R&D. As was pointed out in last year's plan, this lack explains their dependence on outside university and industrial contacts to do the necessary work on Premier.

c. Materials science - There is still no evidence that any research in this area is being carried out at RJR Tobacco. However, we were informed that an individual in the Process Technology and Development Division attended a recent meeting of the American Ceramic Society. This individual's main interests appeared to involve filtration and analyses of certain clay products.

d. Natural products chemistry - As was the case last year, there were no publications from RJR Tobacco R&D dealing with this topic.

RJR Tobacco International

RJR Nabisco announced in mid July that the headquarters of R.J. Reynolds Tobacco International would be moved back to Winston-Salem. About twelve senior executives will relocate to Winston-Salem joining 135 people on the Tobacco International staff already there. RJR Tobacco has reorganized its worldwide business into three regional units, each headed by a president, who will report to Dale F. Sisel, the chief executive of

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Tobacco International. These three individuals are K. D. Langner, who will become regional president for Europe, the Middle East, and Africa and will be based in London; E. J. Lang, who will become regional president of the Americas region including the Caribbean, Latin America, and Canada and will be based in Toronto; and J. H. Sherrill, Jr., who will become the president of the Asia-Pacific region and will be based in Hong Kong.

We have also obtained information indicating that RJR Tobacco International has three small R&D labs located in Trier, West Germany, Montreal, Canada, and Brazil. With the exception of the patent already discussed, there have been neither patents nor publications from any of these laboratories. We have recently been informed that the Trier laboratory has been shut down.

Competitive Analysis - Brown and Williamson

Highlights

As was the case with RJR Nabisco last year, it is possible that BAT, B&W's parent organization, will go private through a leveraged buy out initiated by Sir James Goldsmith. On August 8, 1989, Sir James announced a bid of $21.4 billion for BAT. There is a major difference, however, between the two situations. The proposed LBO for RJR Nabisco was initiated by management. Therefore, the question was not whether RJR Nabisco would be bought out, but rather who would buy them out. In the case of BAT, the LBO was initiated by an outsider, and BAT's management has vigorously fought the attempt. They have been successful to date, and the original attempt failed. However, it is likely that a second bid for BAT's shares will be forthcoming. One thing that is fairly certain is that if Sir James does succeed, he may break the company up and sell off all of the divisions except the tobacco business.

R&D Organization

It is considerably more difficult to obtain information regarding the B&W R&D orgnization compared to RJR. However, we are aware of a number of changes which have taken place. A new Vice President of R&D has been named, JS Wigand. He has no previous experience in the tobacco industry, but instread has a background in the pharmaceutical industry. Lance Reynolds is no longer Director of Exploratory Research, and is now Director of Research. The former Exploratory Research group now reports to him, and is titled New Technologies. Information indicates that this group may be involved in research on new products such as Premier. Lastly, the Engineering Group has been split off from R&D and has been moved to Macon, Georgia. The B&W R&D organization chart is given in Appendix D.

Even further change is likely in the future. B&W placed an advertisement in the August 7, 1989, edition of Chemical and Engineering News for six new scientists. Three of the positions, two for analytical chemists and one for a product development chemist, were for individuals with skills which

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would simply augment B&W's existing staff. The other three positions, however, indicate that B&W plans to branch out into two areas. One position was for a Ph.D. biochemist to become a Section Head - Biotechnology. The position description requires that the individual "manage internal and external programs in biotechnology, focusing on the development of new tobacco varieties or the generation of modified tobaccos." A second position was for a Ph.D. Biochemist who would clearly be a member of this new Section. The last position was for a Ph.D. Physical Chemist/Materials Scientist who would "provide the scientific base to develop leading edge technologies for new products." The position requires experience in heat and mass transport and surface properties of materials. B&W's current plans clearly are to develop novel, high-tech products for the cigarette market.

Patents and Publications

Brown and Williamson continues to be extremely active with respect to patenting. From the twelve month period of July, 1988, to July, 1989, they have eight issued US patents. This is supplemented, however, with six US patents and nine European Patent Office Publications from BAT, UK, and five US patents and seventeen European Patent Office Publications from BAT Cigarettenfabriken, GmbH, West Germany, for a total of of nineteen US Patents and twenty-six European Patent Office Publications. The majority of this patent activity (73%) is in four areas; namely, QA inspection devices (24%), manufacturing equipment (20%), packaging (16%), and tobacco expansion (13%). The complete breakdown of BAT patents is given in Table 7. Only six of the patents and patent office publications deal with potential products. Three (EPO 209,267, EPO 209,268 and EPO 209,269 from BAT, UK) disclose wrappers for low sidestream cigarettes. No novel technology is disclosed in these patents. The other three disclose a concentric cigarette rod similar to the rod used in Project Abstract (DE 3,743,597 from BAT GmbH), a non-burning article using technology which will undoubtedly not function well (US 4,765,348 from B&W), and a grooved cigarette rod most probably to control mass burn rate (US 4,825,885 from B&W).

Only two BAT patents cover technology in which PM USA might be interested. One (US 4,760,854 from B&W) teaches a method for tobacco expansion at a low moisture level. The other (US 4,823,817 from BAT, UK) describes a potentially useful process for tobacco reconstitution which extrudes a mixture of tobacco, starch, a binder and water followed by a draw down step and cutting to particle size.

The large number of patents and published patent applications involving QA inspection devices is intriguing. It would appear that BAT may have adopted the strategy of improving their competitive position through improvement of product quality. The fact that all of this activity has been in the UK and West Germany, however, may indicate that this strategy is a European rather than a US strategy.

With the exception of a few TCRC presentations no publications or presentations have issued from B&W R&D during the twelve month period from

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TABLE 7

BAT Patents from July, 1988, to July, 1989

QA Inspection Devices
- BAT UK - 2
- BAT GmbH - 9

Packaging
- B&W - 4
- BAT UK - 2
- BAT GmbH - 1

Low Sidestream Cigarettes
- BAT UK - 3

Tobacco Flavors
- B&W - 1
- BAT GmbH - 1

Mass Burn Rate Control
- B&W - 1

Concentric Cigarette Rod
- BAT GmbH - 1

Manufacturing Equipment
- BAT UK - 1
- BAT GmbH - 8

Tobacco Expansion
- B&W - 1
- BAT UK - 3
- BAT GmbH - 2

Filter Technology
- BAT UK - 2

Non-Burning Article
- B&W - 1

Tipping Paper
- BAT UK - 1

Reconstituted Tobacco
- BAT UK - 1

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July, 1988, to July, 1989. Over this same period of time only one publication has been issued by BAT scientists, a paper dealing with aerosol physics from BAT Cigarettenfabrik, GmbH.

Strengths and Weaknesses

Brown & Williamson has an excellent research center which has previously demonstrated its ability to generate new products and processes. Although it is half the size and has about half the budget of the PM USA Research Center, B&W appears to be expanding its R&D facility, and it still has considerable resources to draw on abroad. The number of patents and patent applications in twelve months exceeds the amount generated by RJR Tobacco. In summary, B&W should be regarded as a serious competitor.

Competitive Analysis - Japan Tobacco

R&D Organization

Japan Tobacco (JTI) has a large R&D facility of, as of yet, indeterminate size. The majority of the laboratories are located in Yokohama, and are divided into three separate organizations - JTI Central Research Laboratory, JTI Tobacco Science Laboratory, and JTI Life Sciences Laboratory. In addition each separate R&D organization has a number of experimental stations in other areas of Japan. The organization chart for the Central Research Laboratory is shown in Appendix E. It consists of about 300 individuals. Groups are designated by general terms, and we have been unable to determine the functions of most of these groups by matching names taken from patents and publications for three reasons: 1) most of the patents are from engineering groups which are not part of the Central Research Laboratory; 2) only a relatively small percentage of the publications are solely from the Central Research Laboratory; and 3) a number of publications have only one or two authors from JTI, the rest being from universities. The only group we were able to identify in this manner was the organic chemistry group. We have no information at this time regarding either of the other two laboratories.

Our information regarding JTI's R&D budget is that it is $400 million. This number appears to be quite high, but it has been checked several times. However, as was pointed out above, since we do not know the total size of JTI's R&D staff, we do not know if a $400 million R&D budget is actually out of line. Moreover, we also know that JTI supports some sophisticated outside research, particularly in the biotechnology area, which undoubtedly requires significant funding. Their commitment to biotechnology is supported by the fact that JTI recently completed its purchase of a Belgian biotechnology company, Plant Genetic Systems, for approximately $60 million, and is planning to diversify into international food production.

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Patents and Publications

JTI has been quite active with respect to both patents and publications. They have generated 15 US patents and 13 European Patent Office Publications during the twelve month period between July, 1988, and July, 1989. Over half of these (61%) are in one area, manufacturing technology. Clearly JTI appears to be pursuing a strategy of cost reduction and improved quality in order to increase their competitive advantage. There were no new product patents during this period, although there were two patents dealing with filter technology. A complete list of JTI's patents is given in Table 8.

JTI has been as aggressive with respect to publishing as it has with respect to patenting in the same twelve month period. During this period JTI R&D issued 24 publications. Almost half of these (46%) dealt with biotechnology including genetic engineering, cell culture, microbiology and enzymology. The remainder, however, were distributed over a wide range of disciplines including synthetic organic chemistry, inorganic chemistry, natural products research, engineering, computers, toxicology and fermentation science. It should be pointed out that all of these publications appear to be of extremely high quality.

Strengths and Weaknesses

Based upon an analysis of their patents and publications, JTI possesses an extremely competent R&D center that does work of the highest quality. It is safe to say that if US Companies have been successful in competing with JTI, it is not due to an advantage in technology. The JTI research center has considerable demonstrated strengths in biotechnology, organic chemistry, inorganic chemistry, computers, engineering, and process development. If there is a weakness, it may be in the area of applying research successes to new products. They do seem to be using their technological expertise, however, to pursue a strategy of technology-driven diversification rather than attempting to obtain a competitive advantage over foreign cigarette companies. This decision is not surprising given the fact that the Japanese tend to adopt much longer-range strategies than do American companies.

Competitive Analysis - Other Tobacco Companies

In March, 1989, P. Lorillard introduced Spring in three test markets, Hartford, Conn., Milwaukee, Wis., and Arizona. The cigarette was novel in that both mainstream and sidestream had a lemon (citrus) flavor. The technology was described in a recent US Patent (US 4,823,059, May 23, 1989). This product was withdrawn from test market in December, 1989. What makes this new product noteworthy, however, is the fact that it is the first evidence in quite some time of any new product activity at Lorillard.

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TABLE 8

JTI Patents from July, 1988, to July, 1989

Manufacturing Equipment
- US Patents - 10
- EPO Publications - 7

Filter Technology
- EPO Publications - 2

QA Inspection Devices
- EPO Publications - 1

Tobacco Picker and Sorter
- US Patents - 1

Synthetic Organic Chemistry
- US Patents - 2
- EPO Publications - 2

Tobacco Expansion
- EPO Publications - 1

Reconstituted Tobacco
- US Patents - 1

Entomology
- US Patents - 1

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Competitive Analysis - Non-Tobacco Companies

Philip Morris USA faces competite challenges outside of the cigarette business; namely, from companies developing various types of smoking cessation aids. In 1987 the "chemical deterrents to smoking" business was estimated to be a $100 million business and was expected to quintuple in the following few years. Although these sales figures are small compared to the domestic cigarette business, they certainly cannot be ignored. Lakeside Pharmaceuticals, the company which markets Nicorette, announced in June, 1989, that they were starting up its "first-ever brand-name consumer campaign" for Nicorette. This move was in response to Advantage Health & Fitness Products' announcement that they would be marketing a Cigarest chewing gum, a non prescription product. Three companies are working on transdermal nicotine patches - Ciba-Geigy, Warner Lambert and Cygnus Research. It is estimated that FDA approval of at least one of these nicotine patches could be forthcoming in two to three years. Lastly, two drugs have been identified, clonidine and prozac, which are claimed to be useful as adjuncts in smoking cessation programs.

We will continue to monitor the developments in this area. However, at present we have no programs in place to meet the growing threats of chemical deterrents to smoking. A program, or programs, may have to be formulated in the future.

In addition interest in penetration of the profitable cigarette business may generate competition from areas where we least expect it. As was mentioned in last year's plan, Procter and Gamble issued a patent describing a battery "powered" cigarette. This year the University of California at Berkeley issued a patent describing a method of smoking cigarette smoke condensate thereby eliminating any possible adverse effects from gas phase. Neither of these patents represent a threat to the tobacco industry at present. However, they do indicate that a development which may be a threat could emerge from an unexpected source. As a consequence our vigilance should not be restricted to our "known" competitors.

Social and Political Influences

Social and political factors continue to be the greatest challenges to the industry. The major concern in this area is the anti-smoking movement. The current emphasis of the movement appears to be focused on environmental tobacco smoke (ETS) and the non-smoker as well as the social costs of smoking. Using the 1986 Surgeon General's report on ETS and the 1988 report on nicotine addiction as the backbone of their claims, anti-smoking forces are attempting to put pressure on smokers to make smoking unacceptable in any social situation including the home.

Additional strategies of antismoking groups include banning cigarette promotion and advertising, and increasing taxation to make cigarettes more expensive. Regulations imposing product requirements such as those relating to fire-safe cigarettes and ingredient labelling are areas in which action

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is anticipated within the plan period. Thus, the next five years will clearly be among the most challenging the industry has faced on the social and political fronts.

A summary of 1988 legislative action and additional information on the 1988 state and local legislative year, California's Proposition 65, litter control, recycling and solid waste legislation are included in the three copies of "StateLine" found in Appendix F. A "Nonsmoking Ordinance Guide" published by the Texas Department of Health, Office of Smoking and Health, and American Lung Association of Texas is also included in Appendix F. This document describes in detail a guide which communities can follow to develop local ordinances designed to limit smoking in public places.

Suppliers

PM USA R&D must interact with a number of outside companies which supply components on which product or process development efforts depend. Examples are suppliers of cigarette paper, filter tow, adhesives, and tobacco flavors. We have established two strategic objectives with respect to these suppliers. The first is to be able to set meaningful specifications for each of the products we receive from our suppliers, and to ensure that these specifications are met. The second is to work with suppliers to design modified components for new cigarette products in such a way that PM can obtain exclusive use of these components for some period of time. In 1989 we continued to move closer to meeting these two objectives.

Flavor Suppliers

At the PM USA R&D planning meeting in December, 1986, it was determined that R&D should know and be responsible for the exact composition of each and every PM flavor and casing material. The initial step was to begin establishing confidentiality agreements with the vendors in order to obtain qualitative information as well as quantitative information by ranges. This phase has now been completed with all of the major vendors. These vendors provide 80% of our flavor ingredients both in terms of dollars and volume. The second step was to subject each flavor supplied by the major vendors to a thorough quantitative and qualitative analysis to ensure that each flavor formulation met our specifications. At this time about 50% of this work has been completed. It is estimated that it will require 18 months to complete this phase. This phase has taken considerably longer than expected since a great deal of the work had to be repeated as a consequence of revisions to the Ingredients List.

Filter Tow Suppliers

Our two filter tow suppliers, Celanese and Eastman, are currently working on a number of joint R&D programs in conjunction with PM USA R&D. The major effort at Celanese involves CA web, a high efficiency CA filtration medium which is comparable to paper in removal efficiency, but has better subjective character than paper. Currently, Celanese is working

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with two paper manufacturers to develop both a product and a process on a commercial scale. They are also developing technology to process the web into usable filter rods, and they have offered to share this technology with us. Two programs are being currently pursued with Eastman. We have successfully negotiated an exclusivity agreement on a filter which will reduce menthol migration with Eastman. As the first part of this work they will explore the effects of heat stress, aging, and plasticizer on menthol delivery. In addition we are working with Eastman on high efficiency tows.

Paper Suppliers

We have been working with Kimberly-Clark for most of 1989 with the goal of improving their responsiveness to our requests and obtaining exclusivity on jointly developed cigarette papers. At present virtually all of our work with KC involves wrappers for low sidestream cigarettes. We have obtained exclusivity on the outer wrap for Trim V as well as exclusivity on a "high basis weight" low sidestream paper which will be jointly developed. In addition we have secrecy agreements in place with Kimberly-Clark covering coating of flavor-release materials on to cigarette paper, bilayer sheets to reduce cigarette spotting, papers with improved runability for high speed manufacturing, and papers for control of mass burn rate.

We have started to work closely with Ecusta only recently. In August we agreed to jointly develop a low sidestream wrapper utilizing magnesium carbonate with an agreement to obtain exclusive use of any such wrapper if we desire. We also have secrecy agreements in place with Ecusta covering coating of flavor-release materials on to cigarette paper, the use of calendered bands to control burn rate, coating of paper with hydrophobic materials in order to reduce spotting, and the <u>in situ</u> precipitation of calcium carbonate in cigarette paper.

Adhesive Suppliers

There are four major suppliers of cigarette construction and packaging adhesives - National, Fuller, Findley, and Ajax - and two minor suppliers. National Starch and Chemical Corporation is owned by Unilever. Their products include adhesives, sealants, resins, chemicals, starches and food products. With sales of $1.4 billion in 1988 and producing 70% of their own raw material needs, National is the largest and most vertically integrated of our adhesive suppliers. Their investment of approximately 5% of sales into R&D supports a Research Center staffed by 600 individuals. Their leading position among adhesive vendors in R&D is also supported by their sizable patent estate of over 1000. National has recently entered into a confidentiality agreement with PM related to disclosure of adhesive ingredients.

H. B. Fuller Company produces adhesives, sealants, coatings, paints, sanitation chemicals, and specialty waxes. Like National, Fuller does manufacture its own polymers, but is not as vertically integrated. Whereas

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their sales ($685 million) and R&D resources (2% of sales) are significantly less than those of National, they are nonetheless a significant adhesive manufacturer and PM's major supplier.

Findley Adhesives, Inc., manufactures adhesives, coatings, bone foam (meat packing), and gasket materials. Findley purchases its raw materials from other sources, and is a much smaller company than National or Fuller with sales of $125 million in 1988. Findley has exhibited excellent service, and is cooperative in addressing product modifications. They also serve as a distributor for Eastman Chemical's hot melt adhesives.

Ajax Adhesives Industries, Inc., produces adhesives and tobacco preservatives. They are a small privately-held company with sales of $20 million.

All of the above vendors also supply other operating companies within PM Companies, and many also supply some of PM USA's major competitors.

Collaboration with adhesive suppliers has just begun in 1989. As mentioned above, PM has recently signed a confidentiality agreement with National Starch, and intends to initiate work on setting adhesive specifications. In addition we are working with National on a collaborative program to develop a sideseam adhesive which will contain flavor-release compounds for Project Ambrosia.

Other Suppliers

Vision Systems

Because the field is new, vendors of vision systems (computerized devices which inspect product for visible defects) are generally small companies with limited resources. PM Engineering has worked extensively with one company (Itran) and more briefly with others. These companies are generally very interested in tobacco industry business and are responsive to our specialized needs (speed, resolution, interfacing).

R&D has recently developed a proprietary inspection procedure which allows global inspection of packs and shows promise for cigarette inspection. This development has been discussed with Itran. They have been reluctant to develop, package or maintain this system for us, however, since we would require control of its sale to others. Itran evidently feels that such potential restriction of their sales makes development at their expense impractical. Development on a fee basis was discussed, but a satisfactory agreement on price and (particularly) delivery time could not be reached. Solutions presently under consideration include the establishment of an "in-house" optical inspection function and/or the contracting of the assembly and maintenance of such systems to a third party "fabricator."

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Infrared Monitors

The tobacco industry makes extensive use of infrared meters for on-line monitoring of tobacco moisture. New commercial instruments are evaluated in our facilities, and a commercial nicotine monitor is under evaluation in Process Development. These measurements are fairly "generic," so that there has been no reason to ask the vendors to develop special apparatus for PM use. Since our industry is one of their major customers, the vendors are extremely responsive to our needs. However, their interest in proprietary developments would need to be determined when the occasion arises.

Technology Assessment

The objectives of the R&D Technology Assessment effort are to define needs for technology over the next five or more years; identify technology solutions; develop and/or adapt these solutions to our needs; and recommend and facilitate implementation of the technology. In 1988 twenty-five key emerging technologies were identified and discussed. These twenty-five technologies, and the status of these technologies at R&D, were discussed in detail in last year's R&D Strategic Plan. Three "strategic technologies" were selected for particular emphasis during 1989. These strategic technologies are: 1) optical inspection, 2) artificial intelligence, and 3) paper/adhesive/ink technologies.

Considerable progress has been made in the area of optical inspection of packs. PM USA Engineering has adapted commercial vision systems for use in several critical manufacturing locations. PM USA R&D has developed two proprietary systems. One, which utilizes a digital filter to perform "global" (as opposed to specific defect) inspection, will be evaluated at Stockton Street in December and January. The other is a less precise, but potentially fast and inexpensive system developed through contract research at Carnegie Mellon University.

A major challenge in implementing optical inspection systems is a need to minimize continuing support commitments. The question as to where PM-developed devices will be manufactured is also unanswered. This latter problem derives from PM's desire to have exclusive use of new technologies for some period of time. As of yet, no outside company is interested in manufacturing inspection equipment exclusively for PM at a reasonable cost and in a timely manner.

Work continues to develop equipment for high speed cigarette inspection. PM USA Engineering is adapting some promising commercial technology, while PM USA R&D develops high speed (electro-optic) scanning techniques and new approaches to global inspection. To implement this technology there is a need to establish communication channels in order to identify critical applications and benefits, ensure practical approaches, and facilitate implementation.

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Areas of optical inspection for off-line application include a tax stamp inspector, package blank inspection, and inspection of printed matter on the printing press. QA trials for the tax stamp inspector are in progress.

Work in the area of artificial intelligence can be divided into two areas - advisory systems and process control systems. A cigarette design advisory system is now in use at R&D. Given construction parameters, it predicts cigarette performance. Ultimately, we would like to specify cigarette performance and have the system recommend optimum construction parameters. Work toward such a system is underway. This will be developed first as a filter design system and then extended to the entire cigarette. A cigarette information expert system is now being used in the Cigarette Testing Division. Continuing development work is ongoing for this system. The Computer Applications and Analytical Research Divisions are looking into the development of two systems, one for chemometrics, and an analytical chemistry advisory system.

Two process control systems for the ART process are under development. The first, an operator advisor, is being worked on by Engineering. The second is an expert system process simulation model which is being developed by R&D. Eventually, these two systems can be synthesized leading to on-line control for the ART process.

In addition to the work described above the R&D Computer Applications Division has initiated work on neural networks. Neural networks are networks of many simple processors which function in parallel. They have the capability of carrying out correlation, mapping and recognition from incomplete, complex or approximate information. A system to make smoker preference predictions from demographic data is under development.

In late 1988 a Paper Technology Program was established to coordinate efforts involving cigarette papers which encompass three established programs - Reduced Sidestream, Project Sigma and Project Tomorrow. One new technology which appears to have significant application to Projects Sigma and Tomorrow is sol-gel technology. Considerable time has been spent in answering the question, Will our present papers be appropriate for the manufacturing equipment of tomorrow? At this time there does not seem to be a problem for the forseeable future.

Little work has be done at R&D dealing with adhesive or ink development during 1989. Although the need for high speed adhesives for higher speed cigarette makers is still an open question, at this time it appears that most operational problems are related to adhesive quality and consistency. One need which has arisen this year is an adhesive which can function at high speeds for papers coated with inorganic gels. Also we need to better understand the mechanism and function of adhesives and better define adhesive composition. As was mentioned above in the section on Suppliers, we have recently signed a secrecy agreement with National Starch which will

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provide us with information regarding formulation information for their adhesives.

A need for water-based inks was identified last year. Although no development work in this area has been carried out at PM USA R&D, our suppliers have made considerable progress in reaching this goal.

Other new technologies which have been worked on during the past year are membrane separations for removing nicotine from a supercritical carbon dioxide stream, catalysts for oxidation (or reduction) of carbon monoxide, and chemical sensors, particularly the circular dichroism sensor to determine on-line nicotine concentration during Project ART extraction.

New strategic technologies will be identified this year. However, particular emphasis must be placed in implementation of new technologies already developed at R&D. Another priority for 1990 will be to increase communication between the Technology Assessment function and the R&D scientific staff. One approach, which would also serve to provide a formal forum for R&D professionals, would be a regular seminar series to discuss both technologies under development and new technologies not yet being investigated.

Situational Analysis Summary

A summary of the situational analysis is presented in Tables 9-12. Tables 9 and 10 list internal strengths and areas which need improvement developed from our internal situational analysis, while Tables 11 and 12 list external threats and opportunities developed from our external situational analysis. It should be noted that action plans to address those areas within R&D which need improvement are given in Section F.

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TABLE 9

Internal Strengths Developed from Internal Situational Analysis

1. Broad scientific base augmented by recent new hires.
2. Rapid response to short-term goals.
3. Good short-term operational plans.
4. Well placed university contacts.
5. Good physical resources.
6. Money available for justifiable programs.
7. Considerable multi-divisional interactions.
8. Good understanding of conventional cigarette construction.
9. Local manufacturing/engineering/computer support.
10. Technically strong staff.
11. R&D programs focused.
12. Planning oriented toward business objectives.
13. Improved effort in alerting outside groups early with respect to technology transfer issues.
14. Increased developmental opportunities because of a more flexible organization.
15. Increased interaction with other PM Companies.
16. Improved financial planning.

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TABLE 10

R&D Areas Needing Improvements Developed from Internal Situational Analysis

1. Technology transfer within R&D and between R&D and other Operations Departments can still be improved further.

2. Lack of knowledge of cigarette manufacturing and processing by bench scientists; however, improvements are being made.

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TABLE 11

External Threats Developed from External Situational Analysis

1. Pressure to increase taxation.
2. Government regulation of cigarette construction (ignition propensity).
3. Government regulation of additives.
4. Social unacceptability.
5. Foreign competition.
6. Product liability.
7. Development of radical new products.
8. Erosion of margins due to expansion of price tiers.
9. Smoking and health issues.
10. Limitation or ban on advertising.
11. Potential product tampering.
12. Introduction of radical new products by competitors.
13. Government attack on nicotine.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 12

External Opportunities Developed from External Situational Analysis

1. Product **"perceived"** as being "safer" by the consumer.
2. International market demand.
3. Menthol products.
4. Growing ethnic markets.
5. Proprietary processes and products.
6. Environmental smoke abatement - design and specifications.
7. Reduce cost of manufacturing.
8. Reduced ignition propensity product.
9. Non-conventional cigarette.
10. Nicotine-free cigarette.
11. Article which will give smoker satisfaction in non-smoking situations.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

C. **FIVE YEAR GOALS AND FUTURE FACTORS WHICH INFLUENCE THESE GOALS**

PM USA Five Year Goals

The latest PM USA Financial Plan outlined objectives for the next five year period. These are as follows:

1. **Volume growth of 14.7 billion units.**

2. **Market share growth of 9.0 market share points to achieve 50.9 percent of the industry.**

3. **Share growth in full margin by 11.3 percent to achieve a share of 56.3 percent (end of '94).**

4. **Share growth in price/value of 16.5 percent to achieve a share of 40.0 percent.**

5. **Accelerated new product programs to respond to changing consumer tastes.**

6. **Continued investment in the cigarette business, including new assets and technologies where appropriate.**

Except for volume growth, which was reduced 1.7 billion units, all of the objectives listed above meet or exceed those given in last year's Plan. The 25 cent per pack excise tax increase in California in 1988 was cited as the causative factor for the projected volume reduction due to the significant share of industry sales in California (10%) and PM's share of that market (50%).

These goals were formulated in the context of a projected industry decline of 64 billion units over the next five years. According to the PM USA plan, PM's competitors are forecasted to lose 79 billion units in the same time frame. Therefore, PM USA volume growth will be achieved by not only taking market share/volume from competitors but also by introducing innovative new products which will have a positive impact on the declining industry market volume.

Based on these PM USA objectives, a number of strategies were delineated. Those relevant to R&D are listed below:

1. New product strategy featuring innovative product concepts. Existing brand imagery and heritage will be utilized to enhance new technology products, when appropriate.

2. Maximize cost efficiencies throughout PM USA. Reduce overhead cost.

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3. Meet growing production requirements within existing facilities, while maintaining manufacturing flexibility, improving product quality and ensuring a stable supply of quality leaf tobacco.

4. Protect industry volume by appropriately responding to anti-smoking attacks and defending the rights of smokers and manufacturers.

The response of R&D to these PM USA Plan Strategies, as well as specific future trends which will affect our industry/R&D, are covered in detail in the section on Analysis of Future Factors.

Analysis of Future Factors

Twenty-four factors have been identified which may have significant impact on our business in the future. Each factor has been considered individually in terms of its impact. The status of the situation surrounding the factor is provided and a likely scenario is identified. A list of current recommendations regarding PM's response to the factor is given. R&D programs and/or actions which address our position relative to each factor are also discussed. Alternate scenarios and R&D responses are provided where appropriate. In situations where current programs are not sufficient, new programs are proposed and/or actions recommended.

1. **Competitive Pressures**

a. Domestic Competition

(1) Existing Business

Status - PM USA achieved a share growth of 1.5 market share points to reach 39.3 percent of the industry in 1988. The company posted a 1.7% increase in unit volume and was the only domestic cigarette company to increase sales in 1988. This successful performance, in the face of a 2.1% annual decline in total domestic industry sales, was achieved largely through the consistent growth of Marlboro, the national introduction of Marlboro Lights Menthol, and substantial growth in the branded generic category with Cambridge. The company's growth continued in 1989 with a projected increase of 2.6 market share points and a year end projected market share of 41.9%.

Of our competitors, only American Brands with Malibu and American Lights, was able to achieve an increased market share in 1988. R.J. Reynolds, our main competitor, lost eight billion units and 0.7 market share points to settle at 31.8% of the market. RJR showed strength in the price/value category with Doral, but lacked strength

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in the full margin category. RJR's innovative Premier was taken off the market in early 1989. This product will be discussed in detail in the section on New Products. Both B&W (Kool, Capri, Richland 100's) and Lorillard (Newport) were able to maintain market share in spite of unit volume losses. Liggett, however, suffered significant losses in volume (-22.8%) and market share (-0.8%). At this rate of decline, Liggett will go out of the tobacco business within this plan period.

A graphic analysis of each product category (non-filter, menthol, full-flavored filter, light filter, ultra lights filter, ultra low tar filter, slims/120's filter, generic, branded generics, value 25's, "price-off" (brands which carry a permanent coupon on the carton), and export) is found in Appendix G. Both market share and growth rate data (1986-1988) are provided for each company and category. PM clearly dominates the following segments: full-flavored filter, light filter, ultra lights filter, slims/120's filter, and export segments. In addition, in spite of an overall industry decline in unit volume, PM has achieved growth in the following segments in 1988: menthol (introduction of Marlboro Menthol and Marlboro Lights Menthol); light filter (growth in Marlboro Lights), ultra lights filter (addition of Merit Ultra Lights 85's and 100's); slims/120's filter (Virginia Slims); generics; branded generics (Cambridge and Alpine); and export.

A summary of PM's position relative to total market share and growth is shown in Table 13. This Table shows that PM is positioned well and dominates all market segments which account for more than six percent of the industry's market volume with the exception of the menthol category. Table 14 provides an overview of the products and companies having significant impact on the compounded annual growth rates reported in Table 13. Recommendations on PM USA R&D's response to domestic market competition in segments where PM is considered to be under-represented are discussed in the next section.

Domestic competition is not limited to the other tobacco companies. Smokers quitting smoking independently, through smoking cessation programs, or with the assistance of "chemical deterrents," is among our most significant competitors in the existing business. Products which address the needs of our consumers and the concerns of our potential consumers are clearly needed in order to compete in today's environment. Due

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TABLE 13

PM Versus Industry
Market Share and Growth

Rank in Total Market	Segment	Share of Market Volume*	Total Industry 1986-1988 Growth Rate of Segment	Total Industry Minus PM 1986 - 1988 Growth Rate of Segment	PM's Growth in Segment	PM's Share of Segment
1.	Full-Flavored Filter	28.1%	- 4.0%	- 5.9%	- 2.3%	56.0%
2.	Menthol	26.9%	- 3.0%	- 4.0%	+ 1.5%	18.9%
3.	Export	22.3%	+32.8%	+48.1%	+24.0%	57.1%
4.	Light Filter	21.8%	- 0.9%	- 4.1%	+ 1.5%	32.8%
5.	Branded Generics	6.0%	+32.0%	+20.7%	+77.0%	30.8%
6.	Ultra Light Filter	5.0%	+ 0.5%	- 2.5%	+ 6.2%	38.0%
7.	Non-Filter	4.5%	-10.0%	-10.0%	-14.0%	1.6%
8.	Generics	3.3%	-15.0%	-17.6%	+84.0%	7.7%
9.	Slims/120's	2.9%	- 4.4%	-10.6%	+ 0.5%	60.0%
10.	Ultra Low Tar (<0.5 mg tar)	2.8%	- 5.9%	- 4.5%	-72.0%**	0.2%
11.	Price-Off	1.9%	+ 2.9%	+ 2.9%	0	0
12.	Value 25s	0.6%	-27.0%	-27.4%	-26.0%	38.0%

* Products may have been considered in more than one segment.

** Cambridge <0.5 discontinued.

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TABLE 14

Products/Companies Having Significant Impact on 1986-1988 Compounded Annual Growth Rate for Domestic Product Sectors

		Industry - PM	PM
1.	Full Flavored Filter	(-) Winston	(-) Marlboro
2.	Menthol	(-) Salem (-) Kool (+) Newport	(+) Marlboro Menthol (+) Marlboro Lts. Menthol (+) Alpine (+) Virginia Slims Menthol (+) Cambridge Lts. Menthol
3.	Export	(+81.7%) B&W (+33.7%) AB (+30.0%) RJR	(+24.0%) PM
4.	Light Filter	(-) Winston Lts.	(+) Marlboro Lts.
5.	Branded Generics	(+) Doral	(+) Cambridge (+) Alpine
6.	Ultra Lts. Filter	(+) Winston UL (<->) Vantage UL (-) Tarryton Lts. (-) Carlton	(+) Merit UL
7.	Non-Filter	(-) Pall Mall (-) Camel (-) Lucky Strike (-) Chesterfield	(-) Philip Morris
8.	Generics	(-21.3%) LG (-12.8%) B&W	(+84.0%) PM
9.	Slims/120's	(-) More (-) Carlton (-) Eve	(+) Virginia Slims (-) Saratoga
10.	Ultra Low Tar (<0.5 mg tar)	(+) Now (-) Barclay (-) Kent (-) True (<->) Carlton	(-) Cambridge (<0.5) discontinued
11.	Price-Off	(-) Raleigh (-) Belair (+) Malibu (-) Chesterfield	
12.	Value 25s	(-) Richland (25s) (-) Newport (25s)	(-) Players Lts. 25s

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to the nature of some of the issues we will need to address, novel products will need to be developed which will satisfy these issues. The situation will be discussed further in the section on New Products.

Likely Scenario

Price/Value Category - In 1988 the price/value category was the fastest growing segment in the industry with the exception of the export segment, and this trend is continuing in 1989. Branded generics were responsible for most of this growth by providing the best alternative to price-conscious smokers wanting to retain quality and taste advantages as well as image. Aggressive industry pricing, to maintain profit growth in the face of declining volumes, will increase demand for products in this category. The growth of Alpine and Cambridge will likely increase PM's share of this segment.

Because of the aggressive pricing strategy of the industry over the past few years, the evolution of a third price tier (Project Bristol) is likely. PM USA strategies relevant to R&D in this area include capitalizing on opportunities against competitive products (including a third price tier) with new products. These products must be differentiated from those of our competitors by maintaining uniform standards of quality, while at the same time pursuing strategies to keep costs to a minimum.

The Price/Value category has another important dimension. Instead of marketing a product at a lower price, providing additional benefit to the consumer would also provide a competitive advantage. Currently, the market seems to be focusing on lowering the price; however, products which address the needs of the consumer (value-added) would stand alone and not be affected by the pricing policies of our competitors. Thus, it is important to view this issue from the perspective of increasing value to the customer by improving quality irrespective of the price of our full-margin brands. Automated inspection systems, freshness improvements, maintaining consistency, and improved packaging are all potential ways to increase benefit to the consumer.

Menthol - The introduction of Marlboro Menthol and Marlboro Lights Menthol is responsible for our growth in this category in 1988 despite an industry decline of three percent. The Marlboro name will be a major factor in maintaining the momentum of this product. The continuing decline of Kool and Salem will likely increase PM's share of this segment. In addition R&D is

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continuing to aggressively develop new menthol products to compete with Newport and Kool.

Ultra Low Tar (<0.5 mg tar) - Only RJR (Now) has increased volume in this category which is declining at a faster rate than the overall market. PM's significant decline in the segment in 1988 was due to the pull-out of Cambridge (<0.5 mg tar). Obviously, maintaining sufficient taste at low tar levels is our ultimate challenge. The Low Tar/High Flavor program is addressing this challenge.

Non-Filter - This segment is declining rapidly and accounts for less than 5% of the market. Therefore, a new product introduction in this category would not be successful. As mentioned in last year's R&D plan, a non-filtered price/value entry might do well because the majority of non-filter smokers are older smokers who tend to be price-sensitive.

R&D Programs

Menthol
Low Tar/High Flavor
Filter Research
Domestic Product Support
Optical Processing
Operations Support
Project Bristol
Project Target

(2) New Products

Status - As our competitors face a declining total market and declining market share, a likely strategy could include the introduction of products unlike those known to us today in order to create a new market niche. Clearly, certain resources would be necessary for a tobacco company to develop radically new products; however, introduction of a radically new product need not be limited to existing tobacco companies. Therefore, the tobacco companies with resources to compete in this area as well as companies outside the industry with appropriate resources are potential sources of competition in this category.

Both RJR and B&W have the resources to compete in this area. In fact, there are indications that our competitors are maintaining or strengthening their resources in R&D. The KKR buy-out of RJR has not yet produced dramatic reductions in R&D personnel. In fact, half as many cuts have been announced for R&D thus far as had been expected by Wall Street analysts. In addition sources indicate that RJR is continuing the

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development of a Premier-like product. Apparently RJR is focusing on the subjective quality of the product.

While RJR appears to be maintaining their resources to develop new products, B&W has launched an aggressive campaign to increase "our professional team...to support our innovative research and development programs" (taken from an ad in C&E News). While the move may reflect B&W's strategy to address their significant decline in all segments except the export segment; another partial explanation may relate to the severe reduction in staff of BAT's research facility in Southampton. In addition, even Lorillard has recently advertised for an Analytical Biologist. In summary, all indications point toward increasing competition in the innovative product category.

In the past year we have seen RJR's Premier, a radically new product, come and go. We have learned from this product that two main objections need to be addressed for a product in this category to be successful. First, RJR was not able to maintain the subjective quality of the product at an appropriate level. Second, because the product delivered nicotine, a substantial amount of negative publicity and potential government action was generated in response to claims that Premier was functioning as a "drug delivery device." A product which addresses these negative factors would clearly have an advantage.

Likely Scenario - Competition will increase in the face of declining market volumes. Innovative products, designed to address consumer needs, could result in a slower rate of decline or even possibly no decrease in sales. PM must maintain and/or continue to strengthen both internal and external resources essential to the development of innovative products. In addition both competitors and consumers need to be closely monitored to help ascertain the technologies of importance and determine how to utilize these technologies to address the needs of the market place. No product of this type is expected from our competitors in 1990. However, it should be noted that the success of NEXT might well lead to the development of competitive low nicotine products.

R&D Programs

Project Sigma, Beta
Project ART
Reduced Sidestream/Paper Technology
Project Ambrosia

Alternate Scenario - Decreasing competition might occur if the buy-out of tobacco companies results in extensive debt which must be serviced by "milking the business."

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While this does not appear to be occurring with RJR, the long-term impact of the buy-out on RJR's operating strategy is not readily discernible. In addition, the apparent desire of Sir James Goldsmith to buy out BAT may result in less domestic competition. Clearly, this take-over trend may impact any tobacco company, because the high profit and cash flow make the ability to repay the debt more realistic.

R&D Response - In order to capture market share under these circumstances, resources would shift toward the development of products designed to directly compete with the major products of the bought company. This strategy would enable us to capture market share from the competitor at a time when their support for their products is likely to decline.

Alternate Scenario - Domestic competition may be impacted even further if a foreign competitor buys all or part of a domestic tobacco company. This may give the foreign competitor access to US blending technology and trademarks which would provide a clear advantage in competing with the US export segment.

R&D Response - Strengthen export/international support in order to deal with the increasing competition in international markets.

b. Foreign Competition

Likely Scenario - The situation in this category remains unchanged from last year's plan. Briefly, a foreign competitor may compete by buying a domestic tobacco company or by marketing their products in the US. The latter seems to be limited by the lack of a distribution system, US blending technology and any marketing advantage for their product.

R&D Programs

International Product Support
Operations Support

Alternate Scenario - A market advantage may be attained by a Japanese company marketing a Japanese brand at a lower price.

R&D Response - Maintain an active program for development of brands with high quality and added value.

2. Social and Political Influences

a. Health Concerns of Customers and Potential Customers

Likely Scenario - As mentioned in last year's plan, anti-smoking concerns have been widely publicized, and we are

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likely to have experienced the major impact of this campaign. All current smokers have undoubtedly heard the claims of the anti-smoking groups and have made their decision to continue smoking. In addition, the outcome of the Cippilone trial has essentially staved off any major increase in the legal cases surrounding health concerns. Therefore, the market trends relative to this issue are not expected to worsen dramatically. However, consumer research has indicated that a product "perceived" to have fewer health problems would be very successful if it stayed within appropriate levels of subjective quality and price. There are approximately three times more non-smokers (potential smokers) than smokers in the U.S. If the tobacco industry is to increase unit volume in the future, potential smokers must become our customers. Successful programs which address consumers' desires are likely to have a major positive impact on the industry.

R&D Programs

Project Sigma/Beta
Project ART
Selective Filtration
Lowered Biological Activity Program
Low Tar/High Flavor

Alternate Scenario - As discussed in last year's plan, two possible developments are: (1) clear establishment of a link between a smoke component and a specific pathology and (2) development of an in vivo bioassay which would confirm the link. Due to the potential impact on the industry, R&D programs must continue to address all aspects of this issue.

R&D Response

Continue fundamental research on the biochemical effects of cigarette smoke. Work should be done to confirm outside findings and monitor product changes. This response is currently being addressed through the Lowered Biological Activity Program.

Continue programs designed to develop ways of removing specific compounds attacked by the anti-smoking groups. Programs currently addressing this issue are the Tobacco Specific Nitrosamine Program and Selective Filtration. We will need increased effort on the latter program during the plan period.

Develop novel products such as Sigma, Beta and ART.

b. Ignition Propensity

Status - Federal legislation is currently pending on this issue. In 1984, the Cigarette Safety Act (Moakley/Cranston) created the Technical Study Group (TSG) to investigate the behavioral, economic and commercial feasibility of developing

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a cigarette with a minimum propensity to ignite upholstered furniture. The TSG determined such a cigarette was technically feasible and may be commercially feasible. Senators Moakley, Cranston, and Heinz have sponsored a bill which would require the NBS to develop a performance test method in one year, after which a fire safety standard would be established and compliance would be required within one year. An industry sponsored bill (Boucher/Bliley) has been introduced which requires investigation into the development of a test. Currently, a Coresta Study Group is working to develop a reproducible test which will distinguish among cigarettes.

Likely Scenario - Federal legislation will result during the plan period that is likely to be a compromise between the Moakley/Cranston/Heinz bill and the Boucher/Bliley bill. The Federal legislation will most probably specify the performance rather than design of the cigarette, allowing for more flexibility in the possible solutions to the situation. We must face the potential challenge of a major change to our entire product line. Several approaches are being investigated some of which require advanced technology.

R&D Programs

Project Tomorrow
Paper Technology Program

Alternate Scenario - As indicated in last year's plan, there are three other possible scenarios to this situation. They are: (1) introduction of a successful fire safe cigarette by a competitor; (2) the Federal law specifies design rather than performance; (3) multiple state and local laws are passed with a variety of requirements.

R&D Response - Develop a satisfactory fire safe cigarette in anticipation of the Federal law. Work to ensure that any law passed is based on a performance standard.

c. Social Concerns

Status - The current emphasis by anti-smoking groups seems to be moving from the smoker to the non-smoker (ETS, cost of smoking) in an attempt to use pressure from the non-smoking population to exert informal restrictions on the smoking population. These informal restrictions are leading to wider acceptance of formal legislation restricting smoking. Numerous pieces of legislation have been considered on the Federal, state and local level, and the momentum has been gathering and will likely continue. On the Federal level a smoking ban on virtually all domestic flights is a fait accompli. Other legislation has ranged from requirements for warning labels on buildings where smoking is permitted to hiring policies which discriminate against smokers. Many of the other restrictions are summarized in Appendix F.

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In addition increased pressure from various groups has resulted in smoking restrictions in both public and private facilities. These groups have attacked environmental tobacco smoke (ETS) in general and specific compounds which are part of ETS. This pressure continues, and it appears that future pressure will be directed toward control of specific compounds.

One approach to the problem of smoking restrictions initiated in 1989 is Project Pact. Project PACT is pursuing the objective of developing technology to treat indoor air so that it will not be irritable to smokers and non-smokers. The program is designed to accomplish the following:

Phase I - Reduce particulate concentrations
Phase II - Reduce gas phase concentrations

Initially, efforts are being directed toward developing treatment technologies for smoking lounges in arts centers and theaters where high levels of smoking are expected for short durations.

Likely Scenario - Smoking restrictions of all kinds are likely to increase. No alternate scenario is anticipated.

R&D Programs

Reduced Sidestream/Paper Technology
Projects Sigma, Beta
Project Ambrosia
Project PACT

d. Advertising or Partial Advertising Ban

Status - In 1988, cigarette advertising and/or promotion restrictions were considered in 19 states and the Federal government. Only a minor restriction on advertising in public transportation was passed in Washington, D.C. Federal legislation is now pending which may prohibit tobacco advertising using human figures, brand names or logos, pictures (except of product at no larger than actual size), free samples or discount coupons, and advertising within 500 feet of schools or where sports activities occur. The legislation also requires that the tobacco product package be white with black letters. A new Canadian law is pending legislative action. This law could pose severe restrictions on tobacco advertising and promotion, and could impact legislation in the U.S.

Likely Scenario - A partial advertising ban will be passed within the plan period.

R&D Response

Develop novel products which are newsworthy.

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Develop products that would be easily recognized as different by the consumer.

e. Surgeon General's Report

Status - The 1988 Surgeon General's report which claimed that nicotine is as addictive as heroin and cocaine is not factual and is not taken seriously by most reasonable people. However, the report has provided credence to the claims of anti-smoking groups and provides a possible basis for government control of the cigarette industry. The 1989 Surgeon General's Report, marking the 25th Anniversary of 1964 Surgeon General's Report on Smoking and Health, was due to issue in January of 1989. To date this report has not formally issued. Interestingly, the reason for delay appears to relate to a lack of consensus on what the report should say.

Likely Scenario - Documents of this type will provide the ground work for additional restrictions on the industry in the future.

R&D Programs - PM is well positioned to address any degree of concern the 1988 Surgeon General's report may have generated. NEXT is in test market and will specifically address the nicotine issue. A thorough evaluation of future Surgeon General's reports should conclude with recommendations for R&D actions. Careful evaluation of the strategy of the next Surgeon General should be made.

f. Regulation of Ingredients

Status - Submission of qualitative ingredients lists to HHS Office of Smoking and Health has been required of the Tobacco Industry since December 31, 1985.

A review of all tobacco industry ingredients may be carried out by the Office of Smoking and Health. A report, which could be in the form of a monograph and be subject to internal and external peer review, could result from this review. Whether or not ingredients will become a major issue during the plan period yet remains to be seen.

Legislation relating to ingredients is currently pending in Congress. The "Tobacco and Nicotine Health and Safety Act of 1989" would, among other things, require full disclosure of all chemical additives in tobacco products and give the Secretary of HHS the authority to reduce the levels of additives perceived to be harmful or prohibit their use. In 1989 the government of Canada passed a regulation which did indeed require all cigarette additives to be disclosed. Our response to this law was to withdraw our brands from the Canadian market. Clearly, this could not be done if a similar law were passed in the US.

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Likely Scenario - The HHS report may issue in 1990 and may result in the following: requests for additional information on certain ingredients; requests for elimination of certain ingredients; and labeling requirements.

R&D Programs - An extensive review of ingredients has been underway at PM for the past four years. From 1986 to 1988 the number of ingredients utilized for all PM USA products has been decreased by 22%. Project Natural, involving the development of a product with a minimum number of additives, is a key part of R&D's effort to address this area. If labeling becomes necessary, a distinct advantage will be realized logistically with the fewest number of ingredients. Requests for additional information and/or elimination of ingredients may result in a significant impact on the resources of the Analytical and Biochemical Research Division as well as Flavor Development. In addition work is ongoing to replace synthetic ingredients with natural ingredients where appropriate. Work to replace natural ingredients with synthetic ingredients may be warranted if the non-specific nature of most natural ingredients presents a problem. Due to the need to maintain ingredient information proprietary for each brand, it is essential that this issue be handled at the industry level. Therefore, any problem that may surface relative to ingredients would be a problem for all tobacco companies.

g. Government Regulation of Tar and Nicotine

Likely Scenario - As mentioned in last year's plan, a significant number of foreign governments will regulate tar and nicotine levels in the future.

These future restrictions will have a significant impact on both International Product Development and Semiworks personnel. ART filler may be utilized to deal with the situation. However, additional resources and capacity would be required to handle the work load.

R&D Programs

Project ART
Operations Support
International Product Support

h. Strategy of Anti-Smoking Groups

Status - A review of the status of anti-smoking groups activities, as well as a Nonsmoking Ordinance Guide, is provided in Appendix F. The strategy of anti-smoking groups appears to be to use every means possible to eliminate tobacco smoking in the U.S.

Likely Scenario - Perhaps the only strategy that would be ultimately successful in dealing with anti-smoking forces

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would be to mount aggressive programs to methodically eliminate their concerns. Certainly, Project ART is an excellent example of such a strategy. The introduction of NEXT, on the heels of the 1988 Surgeon General's Report on Nicotine Addiction, couldn't have been timed better. Initial reaction to the product indicates NEXT will not attract the intense opposition that Premier received. Premier was designed to address concerns relating to smoking with two notable exceptions, nicotine and carbon monoxide. As a result, anti-smoking group reaction to Premier was intense and claimed the product acted as a "drug delivery device." In fact legislation has now been proposed on the Federal level to categorize non-tobacco products containing nicotine as drugs. The Tobacco and Nicotine Health Safety Act of 1989 (R. Whittaker, R - Kansas) also stipulates such products are to be regulated by the FDA.

R&D Programs - All programs which address concerns voiced against smoking will benefit our position on eliminating these concerns. A family of new products which utilize ART tobacco may offer a clear advantage in our current environment. Programs which fall into this category include:

Project ART
Project Sigma/Beta
Project Natural
Project Tomorrow
Lowered Biological Activity
TSNA
Filtration Research
Reduced Sidestream/Paper Technology
Project PACT
Selective Filtration
Membrane Separations

i. Product Tampering

Likely Scenario - An incident of product tampering with cigarettes is feasible and could have catastrophic effects. There is a Crisis Management Team that meets regularly which would undoubtedly formulate responses to such an incident. However, it is important for R&D to adopt a proactive stance on this issue.

R&D Programs - Since packaging is an issue facing all consumer products companies, this particular issue affords much opportunity for synergy among PM companies.

j. Environmental Issues

Status - Environmental issues of all kinds are having an increasing impact on the way we do business. State and local governments have proposed legislation to begin to address concern over solid waste disposal problems. Legislation ranges from bans on specific packaging materials to bans on

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all non-recyclable or non-degradable packaging materials. Other proposals include taxes on manufacturers of "litter-producing" articles. The tobacco industry may need to address a packaging tax and restrictive legislation in a dozen or more states in 1990. In addition, on the local level, air, water, sewer, and landfill restrictions are likely to become serious issues during the plan period. The impact of addressing the problems associated with these issues ranges from increasing the cost of doing business to the need for a radical change in the way we do business relative to the environment. While most of these issues are of potential concern to all who generate waste, some of these issues would be very difficult to deal with effectively. In addition, in many instances, solutions to environmental issues are directly counter to more efficient and faster operations. Additional information on environmental issues facing PM provided by E&EP personnel is found in Appendix H.

Likely Scenario - Environmental issues will begin to heavily impact the industry within the plan period.

R&D must begin to address these environmental issues head-on. Because solutions to these problems will undoubtedly require the development of new technologies and innovative processes and products, the development of a proprietary position in waste management technology would clearly benefit the company's ability to do business. Clearly there are obvious opportunities for corporate wide synergy in this area. However, in many cases, environmental issues are narrowly focused to the specific components utilized in the product or process and how they are handled. Within the next two years this area should be thoroughly evaluated and a plan written to outline R&D's response to dealing with these issues. This would best be accomplished by an Environmental Engineer who would function as a liaison between R&D, E&EP, PM USA facilities, and Engineering, and coordinate R&D programs to address specific needs that are identified.

R&D Programs

Operations Support
Synergy Committee
Nicotine Destruction
Project Grain
Reconstituted Tobacco Development

k. Other Government Regulations

Other government regulations could indirectly impact the way in which we do business. Examples include: forbidding consumer panel testing, government regulations affecting direct materials (e.g., dioxin in paper), and restricting exports.

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R&D Response - Possible response to these and other possible regulations will be formulated, as necessary.

3. **Market Dynamics**

a. Declining Domestic Market

Status - The latest PM USA financial Plan forecasts a declining industry volume of approximately 3.0 percent annually. In spite of this, the plan forecasts a domestic volume increase for PM USA of 14.7 billion units to 235 billion by 1993. Full margin (Marlboro), price/value (Cambridge, Alpine), and new products are expected to yield the forecasted results. A market share of 50.9 percent (increase of 9.0 share points) is projected for 1993.

Likely Scenario - An analysis of the compounded annual growth rate for various market segments is shown in Appendix G. While PM's performance in full-margin products is generally excellent relative to competitors and the general market trend, the current trends in this category do not reflect the needed 7.1% increase (1.7% compounded annual growth rate) in volume over the next five years. As indicated in the five year plan, the price/value category clearly offers opportunity to realize a portion of these goals with a current compounded annual growth rate of +8.4% for the industry and +47% for PM. However, the price/value category currently represents only 11% of the industry volume and 5.9% of PM's total domestic volume. In addition, profit margins will need to be protected by continuing to develop cost efficient manufacturing methods. Based on this analysis, it appears essential that new products be introduced to capture market volume; address concerns of customers and potential customers (pro-active); and deal with the mounting restrictions placed on our product (reactive).

R&D Programs - Develop products which provide a benefit to the customer. R&D programs which address this strategy include:

Project ART
Low Tar/High Flavor
Project Sigma/Beta
Project Ambrosia
Reduced Sidestream
Domestic Product Support

Support development of price/value segment by increasing the resources addressing this segment in Product and Process Development in order to lower costs.

Alternate Scenario - If the rate of decline in industry volume is more than anticipated or new legislation dramatically impacts our ability to do business, R&D programs

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will need to be refocused to maximize our utilization of all opportunities the situation will afford us.

b. International Market

Likely Scenario - Table 15 offers an analysis of current worldwide, international and domestic market trends for both PM and the industry. Both the volume and rate of growth of the international market offer some clear opportunities. In addition, the quality and availability of domestic leaf can sometimes provide a clear product advantage to a U.S. company in the international market.

R&D Programs

Work with PM Europe R&D to provide efficient resolutions to problems common to both markets.

As needed, make available to PM Europe R&D, skills/technology/resources they do not have.

International Product Support
Cast Sheet RCB Process
Filter Research

c. Obsolescence of Our Current Product or Processes

Likely Scenario - Products - In order to address consumers' and potential consumers' concerns while dealing with a declining market radically new products will be essential. Clearly there has been an extensive amount of activity in this area (Next, Superslims, Vantage Excel, Premier and Chelsea), and we know these programs are continuing and/or being extended. Focus group testing has indicated that consumers are enthusiastic over the concept of a product such as Premier. If products such as nicotine chewing gum and nicotine patches are used as cigarette substitutes by a significant number of our customers, the loss in sales could not be regained by marketing a conventional product. While obsolescence of our current product is not likely within the plan period, technological breakthroughs and innovative products are highly likely in the next ten years. Consequently, our efforts to develop innovative new products should receive high priority.

R&D Programs

Projects Sigma, Beta
Project ART
Reduced Sidestream/Paper Technology
Combustion Research
Aerosol Research

Likely Scenario - Processes - Environmental issues, new products requiring new processes, and the increased need for

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 15

Worldwide, International and Domestic Market Trends*
(in billions)

Industry	1986	1987	1988	Compounded Annual Growth Rate 1986 - 1988
Total Worldwide	4,975.0	5,118.0	5,200.0	+2.2%
Total International	4,391.5	4,547.0	4,642.2	+2.8%
Total Domestic	583.5	571.0	557.8	-2.2%
Philip Morris				
PM Worldwide	506.8	540.8	556.4	+4.8%
Market Share	10.2%	10.6%	10.7%	
PM International	292.3	325.2	337.1	+5.7%
Market Share	6.7%	7.2%	7.3%	
PM Domestic	214.6	215.6	219.3	+1.1%
Market Share	36.8%	37.8%	39.3%	

*Figures include cigarettes designated for the military.

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proprietary and efficient processes will lead to an increased effort in Process Development. A specific example of such a scenario involves the DIET process. PM USA's patents for this process will expire in about ten years. RJR, B&W and JTI are all working on new processes for expanding tobacco. In addition, both B&W and JTI have a large number of patents in the past year which protect improved manufacturing equipment and methods. These companies may be focusing their efforts on improved efficiency in order to be more competitive in the price/value category as well as lowering costs for full margin brands.

R&D Programs

New Expansion Process
Cast Sheet RCB Process

d. Demographics

Status - Interesting demographic-related strategies may be derived from the recent data in the Consumer Tracking Study - Year Ending June, 1989. PM's share of male smokers exceeded 40% for the first time and PM's share of female smokers exceeded 40% for the second time. PM's gain this past year can be attributed equally to men (0.7%) and women (0.7%) smokers. RJR, however, can attribute all of their losses to women (1.1%). With Capri B&W experienced a slight increase among women smokers.

In terms of age-related demographics, PM far exceeds competitors as the leading cigarette company among the younger age groups (18-34 years), while RJR still maintains a lead among older smokers. Like RJR, B&W, American and Liggett brands all appeal more to older smokers; whereas Lorillard has a significant portion of its business in the younger age groups. Specifically, in the 18-24 year age group Marlboro continues to increase share as have Camel and Newport. However, Kool and Salem are on a continuing decline in this age group, while Merit, B&H, Virginia Slims, and Winston are beginning to experience declines. Marlboro increased share in almost all age groups, whereas Winston declined in all age groups except 55+ years.

Likely Scenario - The scenario remains unchanged relative to last year's plan. Smokers are getting older, decreasing in number and becoming more price conscious. As a brand becomes identified with a certain generation, new smokers may make an alternate choice in order to maintain or establish their own identity. Currently, PM is positioned well in that Marlboro appeals generally to young adults, whereas RJR's products are associated with a distinctly "older" generation. The introduction of Virginia Slims Superslims should strengthen our position against Capri.

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R&D Programs

Domestic Product Support
PED Programs
Project Trim
Project Cosmic

4. **Reliance of R&D on Suppliers**

Status - A significant amount of progress has been made in this area. However, situations could develop which would result in: (1) shortages of raw materials; (2) key suppliers going out of business; (3) unfavorable business relations with suppliers.

Likely Scenario - As new products and processes become an essential part of our business, new technologies and materials will be required which will increase our need to maximize our utilization of suppliers and their resources.

R&D Response

Develop proprietary products and technology to facilitate and control our position and ensure exclusivity for these products from our suppliers.

Complete the establishment of specifications for incoming materials (flavors, papers, adhesives, packaging materials and packaging inks).

Maximize utilization of suppliers and resources. This may result in deliberately reducing the number of suppliers we use for a specific type of material (e.g., adhesives).

5. **Internal Environment**

a. R&D Resources

Likely Scenario - As indicated in the analysis of future factors, all likely scenarios call for an increase in R&D effort. Therefore, if a constant head count is maintained, R&D's ability to implement the plan and address these future factors will be hampered. In addition the mix of skills of the work force will be required to change in order to develop the technologies for future products. Opportunities, including continuing education, broadening reassignments, and additional training, will need to be made available to new and existing employees in order to obtain and maintain the work force necessary to carry out the plan in future years. Specific issues include the availability of individuals trained in certain technologies, as well as the availability of US citizens to handle sensitive defense-related technologies. In addition it is highly unlikely that existing facilities and equipment will be able to adequately support novel product development or eventual manufacturing.

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R&D Response

Address needs for additional resources by first examining priorities and shifting personnel when feasible. Increase head count in appropriate areas after careful consideration of all possible alternatives.

Determine the relative advantages of carrying out a specific piece of research or development work utilizing outside or in-house resources. Outside resources can be used advantageously when a) the project will be of short duration, b) it would require too great investment in either physical or people resources to conduct the project in-house, or c) a feasibility study is necessary before a decision can be made as to whether or not we intend to seriously commit resources to a program.

Develop action plans to address the projections of a changing work force and the potential shortage of technical personnel with training and reward programs designed to attract and motivate employees and improve overall efficiencies. For example, a post-doctoral program at R&D would allow individuals who were recently trained in a specific technical area to transfer and apply that technology to R&D issues on a short-term basis. This would have several advantages. First, R&D would not have to make a long-term commitment to an individual in order to obtain key technical input. Second, the program would support and encourage individuals with skills in needed areas, as well as provide a trial period for the evaluation of potential permanent employees.

Design and construct necessary equipment and facilities as needed.

b. Manufacturing Support

Likely Scenario - The new manufacturing equipment which can achieve speeds up to 10,000 cigts./minute will require R&D support in order to deal with deficiencies in materials. Certain components, particularly papers and adhesives, may not perform optimally at these high speeds. New technologies (e.g., supercritical extraction) and products will also increase the need for R&D support of manufacturing. The achievement of PM USA's plan volume objectives will be dependent on a significant increase in brands and new products using new technologies and manufacturing techniques.

R&D Response - Continue programs which address manufacturing support. These include work on paper technology, adhesives and optical processing. Develop joint programs with Manufacturing and Engineering to address needs of the future.

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c. Product Quality

Likely Scenario - As the market volume continues to grow in the price/value segment, product quality can become an essential differentiating factor. With three price tiers now a reality, quality must be judged against competitive products in the same price range, and our strategy must be to be superior within each tier . Cost cutting measures should be achieved through the use of new technologies and/or processes which do not significantly impact product quality.

R&D Programs

Operations Support
Optical Processing

d. Cost Efficiency

Status - As indicated in the PM USA Five-Year Plan, cost efficiencies should be maximized throughout the company. New products, new technologies and the large number of issues facing the company in the forseeable future all may threaten to increase the cost of doing business. R&D programs are generally conducted in a manner that maintains PM's proprietary position. While this strategy may increase initial R&D investment, and therefore R&D cost, "ownership" of important product and process technology can certainly lower the overall cost to the company by allowing us to exercise some control over the vendor as well as allowing us to "spin off" or license such technology if it is in our interest to do so.

R&D Response

Continue to consider cost efficiency a major factor in all R&D endeavors.

Continue to focus on programs which will improve our proprietary positions and thereby provide a more cost-effective means of doing business.

Focus resources on issues which may adversely affect the cost efficiency of the company. For example, developing proprietary methods of dealing with environmental issues will improve our ability to do business in a cost-effective manner when faced with environmental restrictions and regulations.

e. Technical Synergy

Status - The diversification of Philip Morris Companies has created the possibility of improving the effectiveness of the individual operating units through a number of synergies. One of these is technical synergy. In order to take advantage of potential areas of R&D overlap, a technical

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synergy effort was initiated in July, 1988, by the research vice presidents of the operating companies. The goal of the groups was to leverage the corporation through joint/ coordinated research activities in order to minimize duplication. The results of the effort have been many. The most important has been the establishment of an informal network of contacts between technical personnel within the operating companies. Catalogs have been established of existing technologies, emerging technologies being tracked, external resources utilized, and facility capabilities. A comprehensive evaluation of our competitors' research personnel, facilities, and activities has ben developed and maintained. More applied results of this effort include numerous examples of successful technology transfer between operating units, several instances of joint technical problem solving, the Technical Symposium program, and exchanges of personnel.

6. External Factors

Technological Advances

Likely Scenario - New technologies are essential to the development of new products and processes which address the areas discussed in this section on future factors. These technologies are important not only to the creation of the product or process, but also to the proprietary position of the company in the industry. Because of the importance in recognizing and evaluating new technologies and their applicability to our product, technology assessment must be accomplished by PM R&D personnel working with outside resources. Therefore, the development and maintenance of outside contacts and resources is essential in maximizing our utilization of technological advances. Within the plan period, important technological advances which would generate a distinct product advantage are likely.

R&D Programs - The Technology Assessment Group functions to recognize (with assistance from all R&D professionals) and evaluate technologies which could be utilized to benefit our position in the industry.

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D. R&D STRATEGIC GOALS

The six strategic goals based on PM USA five year objectives and an analysis of future trends are as follows:

1. **AGGRESSIVELY SUPPORT THE CURRENT BUSINESS.**

2. **DEVELOP PRODUCTS WHICH ADDRESS THE CONSUMERS' DESIRE TO REDUCE THEIR HEALTH CONCERNS.**

3. **DEVELOP PRODUCTS WHICH ADDRESS THE PUBLIC'S DESIRE TO REDUCE ENVIRONMENTAL TOBACCO SMOKE.**

4. **DEVELOP PRODUCTS WHICH WILL INCREASE OUR VOLUME AT THE EXPENSE OF OUR COMPETITORS TO GIVE US OUR "FAIR SHARE."**

5. **IDENTIFY NEW PRODUCT/PROCESS CONCEPTS AND DEVELOP PRODUCTS/ PROCESSES FOR THE INTERNATIONAL MARKET.**

6. **PROVIDE A BROAD FOUNDATION OF BASIC RESEARCH THAT WILL GENERATE NEW PRODUCT CONCEPTS IN 5-15 YEARS.**

Tables 16-21 show for each strategic goal the current and projected programs. For each program both current, given in parenthesis next to the program, and future estimates of resource allocations are given year by year. The rationale for the projected resources allocated to each program are discussed. A breakdown of the resources allocated to each program by Division is given in Appendix I, while Divisional resource allocations and projections are given in Appendix J.

Strategic Goal Number 1 - Support the Current Business

All of the programs that fall into this Strategic Goal, except for the Cast Sheet ROB Process which was formerly part of Operations Support, are already in place as can be seen from Table 16. However, during the next five years emphasis is expected to change. The Operations Support Program covers a number of individual projects including Flavor Specifications, Adhesive Specifications, Packaging and Ink Specifications, Quality Issues, such as Customer Complaints and Burley Spray, Materials Evaluation, Marlboro Standardization, Cigarette Beetle Control, Microbiology, and Alternate Preservatives. During the plan period the Flavor Specifications project will be completed, although work at a maintenance level will continue. Many of the other projects will remain at current levels. A number, however, will need to increase in order to meet future objectives. Increased resources will have to be devoted to adhesive specifications, particularly as the use of papers with unusual properties becomes a reality. Two projects which are not currently being worked on are anticipated as being needed within the plan period. The first involves the development of materials needed as the company utilizes higher speed manufacturing equipment. It is highly likely that both papers and adhesives will have to be developed which can perform without problems at higher maker speed. This program will depend heavily on the development of process simulation. The second new project within Operations Support which will develop during the plan period is process control monitoring. Examples include monitoring blend composition on the fly and primary process control.

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TABLE 16

STRATEGIC GOAL NUMBER 1

Aggressively Support The Current Business

	Resource Allocations* Year				
Program	**1990**	**1991**	**1992**	**1993**	**1994**
Operations Support (77.0)	75.9	79.6	76.7	82.6	82.4
Project Tomorrow (8.0)	10.5	15.1	17.3	14.1	9.0
Reduced Density Rod (21.4)	0	0	0	0	0
Optical Processing (8.4)	11.2	11.2	8.8	8.8	9.4
Tamper Evident Packaging (0.2)	0.6	1.5	1.8	1.2	0.6
Project Natural (2.0)	4.0	2.0	1.5	1.5	1.4
New Expansion Process (7.6)	17.6	17.4	18.0	19.7	19.8
ART Support (51.4)	42.5	33.1	28.2	17.8	17.6
Environmental Issues (3.8)	6.2	7.0	9.3	11.3	12.0
Cast Sheet RCB Process (0)	9.6	11.1	11.6	10.4	10.3
TOTALS (179.7)	178.1	178.0	173.2	167.4	162.5

*Current resources are given in parenthesis after each program.

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Project Tomorrow will require significantly increased resources during the plan period. As was pointed out in the previous section, it is highly likely that a law specifying cigarette performance with respect to fire safety will be passed during 1990. Once this law has been passed, the industry will most likely have two years in which to meet the specifications. Consequently, we have projected that Project Tomorrow will double in size during 1991 and 1992, with decreasing resources being required in the following two years. In addition, it should be noted that a considerable portion of the Paper Technology Program resources could be used for Project Tomorrow.

The Reduced Density Rod Program is projected to end in 1990, since at this time we have found no salient product advantage for such a product.

Optical Processing is projected to increase slightly during the next two years, since during this period R&D will have the responsibility of implementing the technology that is being and will be developed. Little effort has been devoted to Tamper Evident Packaging during 1989. The possibility of working in concert with Kraft-General Foods to develop technology in this area was explored this year. At this time it does not seem that a joint program will achieve our objectives. Consequently, a slight increase in support of this Program is projected. Two individuals from the process development area will be committed to Project Natural in 1990 to solve a number of processing challenges. After 1990 the Program will revert to the same level of support devoted to it in 1989.

Considerably more resources will be devoted to our work on tobacco expansion processes. The objective will be to develop a new expansion process which will be designed to improve product quality and increase throughput. A proposal is currently being developed for the design of a continuous gaseous impregnation process. We anticipate a major effort being devoted to this program during the entire plan period. Important advantages of such a process would be less loss of important tobacco flavors, less breakage, the fact that overdrying would no longer be necessary, and the fact that less reordering would be needed. An added benefit of such a process would be a significant reduction in carbon dioxide emissions (see below).

Support for Project ART has utilized a significant portion of the R&D resources in 1989. It is anticipated that this effort will gradually decline during the plan period, with about a two-thirds decrease by 1994.

Our analysis of future trends indicates that environmental issues will have an increasing effect on the way we do business. At present R&D is working on Project Grain in order to minimize the amount of ethanol released from the air from our processes. Potential future challenges include disposal of nicotine from a modified ART process (water column), disposal problems regarding phosphate and nitrate from our reconstituted tobacco processes (see below), and carbon dioxide emissions. In addition it is likely that we may need to initiate work on the development of biodegradable

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packaging and direct materials. As a consequence we have projected a continuous increase in the resources committed to environmental projects over the plan period.

The need for a more flexible process for producing RCB will require us to increase our resources in this area. Consequently, we have removed this program from Operations Support and made it an independent program. It is highly likely that we will exceed our BL sheet capacity within the plan period. We plan to develop a cast sheet process which can produce material that can be used to substitute for either RL or BL. This will enable us to fully utilize our tobacco by-products across all PM product lines. In addition this process will be designed to decrease the amount of phosphates and nitrates discharged into the water stream.

Strategic Goal Number 2 - Reduce Perceived Consumer Health Concerns

As can be seen from Table 17, considerable resources are being devoted to Strategic Goal 2. The two programs with the largest resources are Project Sigma/Beta and Project ART. The withdrawal of Premier from the market caused a shift in strategy for Project Sigma/Beta with the emphasis now being on longer-term research as opposed to product development. Valuable lessons were learned from the reception Premier received from both the customer and the anti-smoking forces. It seems unlikely that a radically new product which delivers nicotine will be allowed to succeed by the anti-smoking groups, and it is perhaps equally unlikely that a very different product which does not deliver nicotine will be accepted in the market within the next five years. There is a high probability, however, that a product like Sigma or Beta will be the product of the future five to ten years from now. Consequently, we must seize the present opportunity to carry out the research necessary to perfect these products. We anticipate a slight increase in resources devoted to this Program during the plan period as additional product development personnel will be needed to translate the research results into a viable product.

Resources for this portion of Project ART are required to continue to optimize the product, particularly with regard to flavor; optimize the present process; and develop new processes, such as a water column, that will not require the utilization of stems as the adsorbing material. Resources devoted to this aspect of Project ART will decrease by about one-third during the plan period.

Both the TSNA and LBA Programs are primarily defensive in nature. The possibility of the industry being forced to remove certain materials from mainstream smoke in the future is great enough to require that these two Programs be strongly supported. A significant decrease in the resources devoted to TSNA is projected to occur starting in 1993, since it is expected that a number of potential solutions to this challenge will be developed by then. LBA, on the other hand, will require increased resources during the plan period. Basic research in the smoking and health area will become increasingly sophisticated during the next five years, and R&D must be in a

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TABLE 17

STRATEGIC GOAL NUMBER 2

Develop Products which Address the Consumers' Desire to Reduce their Health Concerns

	Resource Allocations* Year				
Program	**1990**	**1991**	**1992**	**1993**	**1994**
Project Sigma/Beta (41.8)	44.0	45.9	48.9	48.2	47.2
Project ART (43.2)	40.4	33.1	31.6	30.4	29.6
TSNA (19.7)	19.6	20.6	20.0	15.0	12.0
LBA (18.8)	19.4	19.0	21.6	23.4	25.0
Selective Filtration (1.2)	2.7	3.3	3.9	3.8	4.4
Supercritical Technology (6.5)	10.4	14.6	14.8	19.8	20.4
TOTALS (131.2)	136.5	136.5	140.8	140.5	138.6

*Current resources are given in parenthesis after each program.

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position to evaluate conclusions arising from this research which may represent external threats.

Selective filtration is another defensive program. The industry has frequently come under fire for certain gas phase components, particularly CO and NO_x. Although it is unlikely that we will be forced to lower the amount of these compounds presently being delivered in mainstream smoke, tangible benefits would result if we could do so. Consequently, an increased effort in this area is projected for the plan period.

The last program which can contribute to the objectives of Strategic Goal 2 is supercritical technology. We have achieved a significant success in the use of supercritical CO_2 for the extraction of nicotine. However, there are a number of other potential uses for this technique. Two examples are the removal of secondary alkaloids from tobacco, and the transfer of flavorants from one type of tobacco to another. The great potential for this technique coupled with our considerable expertise suggest that a significant increase in resources should be devoted to this technology during the plan period.

Strategic Goal Number 3 - Reduce Environmental Tobacco Smoke

Table 18 emphasizes the fact that most of our effort in the area of environmental tobacco smoke is being devoted to the Reduced Sidestream Program. We have had considerable success with the design of products with reduced sidestream visibility in 1989, and anticipate considerable product development efforts in this area in 1990. We do not project a large decrease in allocated resources during the plan period, however, since visible sidestream smoke is only a portion of the problem. It is planned to initiate work on the reduction of sidestream gas phase in 1991 and beyond. It should be noted that the Reduced Sidestream Program will not address the reduction of exhaled smoke. This challenge will require considerable basic research, and it will be addressed in the discussion of Strategic Goal 6.

A new Program covered by Strategic Goal 3 is Project Ambrosia. The design of a product to alter the aroma of sidestream smoke was initiated in 1989 and is expected to require about the same level of resources in 1990. We anticipate that the a product will be developed in 1990, and that work on this Program will require gradually decreasing resources during the plan period.

The ETS program consists of a monitoring function and a proactive program, Project Pact. Additional resources for the monitoring portion are projected for the next two years, after which the level of support is anticipated to decrease. Project Pact is an approach to the ETS challenge which has as its objective the development of state-of-the-art room ventilation systems. Although it is preferable to address the environmental tobacco smoke situation through the design of products, a parallel effort of this type is necessary. Since this approach is of secondary importance, however, the plan shows only minimal resources being devoted to it.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 18

STRATEGIC GOAL NUMBER 3

Develop New Products which Address the Public's Desire to Reduce Environmental Tobacco Smoke

		Resource Allocations* Year				
Program		1990	1991	1992	1993	1994
Reduced Sidestream (46.0)		44.1	38.8	37.6	36.1	34.7
Project Ambrosia/ Ash Tray Odor (9.4)		8.4	6.8	2.7	2.2	1.8
ETS Monitoring (4.7)		7.5	7.5	6.4	2.7	2.7
Project PACT (7.4)		4.7	4.8	3.6	3.6	3.6
TOTALS	(67.5)	64.7	57.9	50.3	44.6	42.8

*Current resources are given in parenthesis after each program.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Strategic Goal Number 4 - Products Which Will Increase Volume at the Expense of Competitors

Programs directed toward this Strategic Objective are listed in Table 19. The first two programs, Menthol and Low Tar/High Flavor, address market areas in which we do not yet dominate. We have been actively working in these areas for some time, and we anticipate that we will continue to do so during the entire plan period. In addition, the fact that our number one competitor, RJR Tobacco, has recently decreased its marketing effort for most of its full margin brands, including Salem, Vantage and Now, provides us an excellent opportunity. We plan to take advantage of this opportunity during the next five years by slightly increasing our resources devoted to these two programs.

The Filter Research Program is a necessary adjunct to both the Menthol and Low Tar/High Flavor Programs. Work is currently ongoing to investigate the possible role of new filter designs for the Reduced Sidestream Program. The importance of novel filters to many of our new product designs necessitates maintaining this Program at its present level during the plan period.

Domestic Product Support encompasses product development work on those new products which are planned to be or are in the early stages of test market or national introduction. The ambitious goals outlined in the PM USA Financial Plan will require an increasing number of new products during the plan period as well as certain novel products, such as reduced sidestream cigarettes, which will require a significant increase in the effort required for this Program. In addition we anticipate that the redesign of at least certain products will be necessary to reduce cost. As a consequence we have planned to increase the effort devoted to Domestic Product Development by about 40% over the next five years.

Strategic Goal Number 5 - International Products

The fact that sustained growth is anticipated in the international market will require greater involvement from PM USA R&D. As can be seen in Table 20, resources allocated to International Product Support are expected to increase significantly during the plan period. This increase is necessary not only for products exported directly by PM USA, but also to support other international efforts.

The other three programs covered under Strategic Goal 5 are much narrower in scope. Work on the TMCI BL Process is included in the new Cast Sheet RCB Process, discussed under Strategic Goal Number 1, from 1990 on. As was pointed out in the discussion of future trends, a large number of international brands will have to repositioned during the plan period in order to comply with government regulations regarding tar and nicotine levels. PM USA R&D will be required to allocate some resources to support PM International in order to meet this objective. Lastly, a portion of the Filter Research Program is devoted specifically to PM USA export brands,

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 19

STRATEGIC GOAL NUMBER 4

Develop Products Which Will Increase Our Volume
At The Expense Of Our Competitors

	Resource Allocations* Year				
Program	**1990**	**1991**	**1992**	**1993**	**1994**
Menthol (11.3)	9.8	12.2	13.0	13.8	14.4
Low Tar/High Flavor (16.4)	15.5	17.3	17.6	19.1	19.1
Filter Research (12.3)	11.8	12.8	14.6	12.6	13.5
Domestic Product Support (43.8)	49.1	57.2	65.7	66.2	66.0
TOTALS (83.8)	86.2	99.5	110.9	111.7	113.0

*Current resources are given in parenthesis after each program.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 20

STRATEGIC GOAL NUMBER 5

Identify New Product/Process Concepts and Develop Products/Processes For The International Market

Resource Allocations*

Program (Year)		1990	1991	1992	1993	1994
International Product Support (24.4)**		24.4	26.2	30.3	34.2	36.5
TMCI BL Process Development (1.5)		0	0	0	0	0
Reduced Tar & Nicotine (2.0)		2.0	2.0	2.0	2.0	1.8
Filter Research (5.3)		6.2	6.3	6.2	7.2	7.1
TOTALS	(33.2)	32.6	34.5	38.5	43.4	45.4

*Current resources are given in parenthesis after each program.

**Does not include the following PMPI resources for 1990-1994:

Cigarette Development	18.0
Product Evaluation Division	2.0
Cigarette Testing	22.0
Total	42.0

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

particularly charcoal filtered cigarettes for the Far East.

Strategic Goal Number 6 - Basic Research

Nine programs are listed in Table 21 which cover areas of basic research currently being pursued in PM USA R&D. These programs are of two different types. Five of them, Combustion Research, Flavor Research, Aerosol Research, Selective Separations, and Basic Analytical Research, involve areas of research which, although they support existing programs in many cases, will also develop into major product-related programs in 1991 and beyond. As a consequence they will require increased resources during the plan period. One such program, the development of a cigarette which will burn at a lower temperature, is described in more detail in the following paragraph.

Significantly lowering the combustion temperature of tobacco is a challenging assignment that would have a number of benefits. Not only would it address the fire-safety issue, but more importantly lowering the combustion temperature would prevent the formation of the vast majority of substances which constitute the "biological activity" of tobacco smoke. This approach would accomplish these objectives, yet still provide the customer a cigarette no different in appearance than the one he is currently smoking. To accomplish this objective we must develop significant new technology involving the combustion of organic materials (Combustion Research), develop a thorough understanding of the manner in which tobacco flavor is formed and delivered (Flavor), and selectively remove certain components of tobacco or add certain flavor precursors (Selective Separations).

Other key product concepts are also addressed by these basic research areas. The group working on **aerosol research** is developing techniques which can enable us to produce a thermal water-based aerosol. This work has immediate application to Sigma and Beta. In addition, however, the technology being developed is essential for the design of a conventional cigarette which will deliver an aerosol from exhaled smoke that will either rapidly disperse or which would be non-visible. This will enable us to address the entire ETS challenge rather than focusing only on sidestream. With respect to sidestream reduction, despite our current successes, we need to address the basic problem; namely, to restrict the combustion of tobacco so that it takes place only during the puff. Technology which could accomplish this objective is being developed for Beta; that is, the flavor dot matrix. Transfer of this technology to a conventional cigarette will require the development of novel flavor systems requiring considerable basic research in **flavors**. Lastly development of tobacco flavoring systems as well as optimizing the subjectives of mainstream smoke for new products will require considerably greater understanding of smoke composition. New analytical techniques will be required to accomplish this goal which will require **basic analytical research** to develop them.

The remaining four basic research programs, Consumer Testing Research,

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TABLE 21

STRATEGIC GOAL NUMBER 6

Provide A Broad Foundation of Basic Research That Will Generate New Product Concepts in 5-15 Years

	Resource Allocations* Year				
Program	**1990**	**1991**	**1992**	**1993**	**1994**
Combustion Research (2.0)	2.2	5.0	7.7	7.4	9.2
Mass Burn Control					
Project Tomorrow					
Pyrolysis Temperature Control					
Cigarette With Low Burn Temperature					
Flavors (7.8)	8.2	13.6	16.7	18.2	18.8
Thermal Flavor-Release					
Sigma/Beta					
Ambrosia					
Flavor Formation Studies					
Cigarette With Low Burn Temperature					
Fragrances					
Ambrosia					
Volatile Flavors					
Cigarette with no ETS					
Aerosols (3.7)	3.3	3.6	3.4	4.0	4.0
Formation Mechanisms					
Sigma/Beta					
Reduced Sidestream					
Cigarette with Low Combustion Temp.					
Short Lived Aerosols					
Cigarette with No ETS					
Selective Filtration					

*Current resources are given in parenthesis after each program.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 21 (Continued)

STRATEGIC GOAL NUMBER 6

Program	Resource Allocations* Year 1990	1991	1992	1993	1994
Selective Separations (2.3)	3.6	3.8	5.6	7.5	8.1
Supercritical Fluids					
Project ART					
TSNA					
Membrane Separation					
Cigarette With Low Burn Temperature					
Project ART					
Consumer Testing Res. (5.7)	6.6	6.9	7.5	7.5	8.8
Regression-Based Modelling of Liking					
Stochastic Discrimination Models					
Cost/Benefit Evaluation					
Quantitative Modelling of Market Dynamics					
Measurement & Sensing of Physical & Chemical Characteristics (2.2)	3.1	3.7	5.0	7.4	6.6
Process Control Systems					
Optical Processing					
Project ART					
Adhesive Application					
Biological (4.5)*	4.5	5.9	6.0	8.6	9.0
Antibodies					
New Analytical Methods					
Biosensors					
Process Control Systems					

*Current resources are given in parenthesis after each program.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 21 (Continued)

STRATEGIC GOAL NUMBER 6

Program		Resource Allocations* Year 1990	1991	1992	1993	1994
Computing Systems	(4.4)	4.4	5.1	5.4	5.4	5.4
Expert Systems and Neural Networks						
Process Control						
Optical Computing						
QA Inspection						
Basic Analytical Research	(0)	0	0	0	2.4	4.8
New Analytical Methods						
TOTALS	(32.6)	35.9	47.5	57.3	68.4	74.7

*Current resources are given in parenthesis after each program.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Measurement & Sensing of Physical & Chemical Characteristics, Biological Research, and Computing Systems, either support on-going programs or are directed toward the development of new technology to support current and future operations. Consumer Testing Research is directed toward continually refining our methods of product evaluation in order to improve our ability to make predictions about the potential success of new product prototypes. Measurement & Sensing of Physical & Chemical Characteristics involves the development of remote sensing techniques for process control. An example of a recent accomplishment in this area is the development of a circular dichroism (CD) detector to determine the extent of nicotine extraction during the ART process on-line. Two specific areas of new technology are listed under Biological Research. The first is the use of antibody technology as a means of developing rapid, automated analytical techniques. Work on a nicotine antibody is already in progress. Secondly, biosensors constitute an emerging technology that allows remote sensing of a particular chemical component with high specificity. For example, a system could be established which would detect incipient spoilage of RL long before it would be detectable by other procedures. Lastly, the use of expert systems and neural networks is anticipated to grow rapidly over the next five years. These techniques increase the role that computing systems will have in process control and other areas. Optical computing is a technique that will be explored as a QA inspection tool.

Resource Allocations

Table 22 shows the projected resource allocations for PM USA R&D through 1994. The first row shows the total of directly allocated personnel taken from the summary sheets in Appendix I, the second row the total number of support people taken from the same summary sheets, and the third row the total of both categories. A total of 43 individuals, in an executive and administrative category, is added to yield the total head count. The last row shows the total increase in projected head count for each year. These numbers are as follows: 1990, 6 individuals all in support; 1991, 20 individuals including 8 in support; 1992, 17 individuals including 7 in support; 1993, 5 individuals including 2 in support; and 1994, 1 individual.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 22

Projected R&D Personnel Requirements Over The Plan Period

	1989	1990	1991	1992	1993	1994
Directly Allocated	330.90	333.40	342.20	349.40	351.50	352.50
Support	197.10	200.60	211.80	221.60	224.50	224.50
Sub-Total	528.00	534.00	554.00	571.00	576.00	577.00
Exec. & Admin.	43.00	43.00	43.00	43.00	43.00	43.00
Total	571.00	577.00	597.00	614.00	619.00	620.00
Increase Over 1989 Budget	-	6	+20	+17	+5	+1
Cumulative Increase Over 1989 Budget	-	6	+26	+43	+48	+49

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

E. FINANCIAL ASPECTS

The R&D budget over the plan period is shown divided by cost center in Table 23 in both constant and inflated dollars. The total budget excludes contributions and Science and Technology. Since the budget is based upon the total number of people, it increases proportionally to the added head count over the plan period. Table 24 shows the budget divided by Strategic Goal.

F. Recommendations

Action Plans

Table 10 lists two areas in which PM USA R&D needs to improve identified through internal situational analysis. Summarized below are steps which have been taken to make improvements in these areas during 1989, and action plans to continue improvements.

1. Technology transfer within R&D and between R&D and other Operations Departments can still be improved further.

   The situation with respect to barriers to technology transfer within R&D has improved dramatically. During the past two years a number of individuals on the senior technical staff have been given assignments which involve working across Divisional and Directorate lines. These individuals have developed an understanding of the problems unique to the different areas and have done an excellent job in facilitating communication. In addition a number of the priority programs are now being carried out with an informal type of matrix management which encourages close cooperation between different areas within R&D. Examples of such projects are Sigma/Beta, Paper Technology, and ART.

   Progress has been somewhat slower with regard to barriers to technology transfer between R&D and other departments. Considerable emphasis has been placed on using the R&D quarterly planning meetings as a vehicle to assist with technology transfer. Presentors have been asked to stress technology transfer issues, and steps have been taken to ensure that representatives are present from other Operations Departments so that they are alerted at the early stages about possible new technologies. The Technology Assessment Working Committee has also become a useful vehicle for technology transfer issues. In the final analysis, however, implementation of technology can only be carried out smoothly if R&D adheres to the principle that the group receiving new technology is R&D's customer. In other words, technology transfer will be successful only if the "customer" wants it and only if he receives sufficient assistance to implement it. The Optical Processing Program serves as a good example. Methods for 100% cigarette inspection are being developed; however, we are now

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TABLE 23

PHILIP MORRIS U.S.A.
RESEARCH AND DEVELOPMENT
EXPENSE SUMMARY

(IN MILLIONS)

	1989	1990	1991	1992	1993	1994
EXECUTIVE & DIT	10.2	9.9	11.5	12.3	10.8	11.2
NEW BLEND DEVELOPMENT	-	-	-	-	7.0	7.0
RESEARCH	24.8	25.8	26.4	27.0	27.1	27.2
PROCESS DEVELOPMENT	14.9	15.3	15.3	15.3	15.4	15.4
NEW PRODUCTS	9.6	10.4	11.2	11.5	11.7	11.7
R&D SUPPORT	12.6	12.3	12.5	12.6	12.7	12.7
COMPUTER APPLICATIONS	4.2	3.9	3.9	3.9	3.9	3.9
PM PRODUCTS	3.0	3.0	3.0	3.0	3.0	3.0
TOTAL CONSTANT $	79.3	80.6	83.8	85.6	91.6	92.1
INFLATION (%)	0	4.3	9.0	14.3	20.8	26.8
TOTAL	79.3	84.9	92.8	99.9	112.4	118.9

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TABLE 24

PHILIP MORRIS U.S.A.
RESEARCH AND DEVELOPMENT
SPENDING ALLOCATIONS BY STRATEGIC GOAL

(IN MILLIONS)

	1989	1990	1991	1992	1993	1994
SUPPORT CURRENT BUSINESS	27.3	27.0	27.0	26.0	24.6	24.0
REDUCE HEALTH CONCERNS	19.5	20.5	20.6	21.1	20.6	20.4
REDUCE ETS	10.1	9.8	8.8	7.5	6.6	6.3
INCREASE VOLUME	12.5	13.0	15.0	16.6	16.4	16.7
INTERNATIONAL MARKET	5.0	4.9	5.2	5.8	6.4	6.7
BASIC RESEARCH	4.9	5.4	7.2	8.6	10.0	11.0
EXECUTIVE & ADMINISTRATIVE	5.2	5.3	5.3	5.3	5.2	5.2
NEW BLEND DEVELOPMENT	-	-	-	-	7.0	7.0
TOTAL (Constant $)	79.3	80.6	83.8	85.6	91.6	92.1

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asking the question to our potential customers if they need such a method. We need to involve the departments who will implement this technology into the program now, not when development is completed. In 1990 Optical Processing will be used as a model for well planned technology transfer. Individuals from QA, Manufacturing, and Engineering will be involved in the program at this time, and members of R&D will be assigned to work with QA personnel in establishing the methods in our plants.

2. Lack of knowledge of cigarette manufacturing and processing by bench scientists; however, improvements are being made.

The Scientist Orientation Program was established in 1989 with the objective of providing selected scientists exposure to tobacco processing and cigarette manufacturing. Mr. Mike Penn, from the Biochemical Research Division, and Mrs. Diane Leister, from the Physical Research Division, were assigned as the first participants in this program. Mike has been working with the Semiworks engineering group since July, 1989. In addition to specific project tasks aimed at supporting the Semiworks operations, Mike has also been given assignments which will provide him with an understanding of all the major tobacco primary processing steps. Diane was assigned to the Tobacco Materials Division in September, 1989, and has been working with the DIET process in D Pilot Plant. At the end of November she will move to the Reconstituted Tobacco Development group to obtain experience with tobacco sheet making processes. Feedback from these two participants indicate that this new Program is quite successful, and present expectations are to continue with it.

The Scientist Orientation Program addresses half of the action plan developed in the 1988 R&D Strategic Plan directed toward increasing our bench scientists'' knowledge of tobacco processing and cigarette making. The other proposal was to develop a short course which could be given to the entire staff over a period of a number of years which would at least acquaint them with an introduction to these important phases of our business. This will be addressed in 1990.

Tactics

The tactics for carrying out the 1989 R&D Five Year Strategic Plan are the major programs that must be put into place in order to achieve the Plan's objectives. Table 25 lists these programs for each year and gives the anticipated resource allocations for each program. It should be noted that these resource allocation numbers do not necessarily agree with those given in Tables 16-21. This is because in certain cases projects listed in Tables 16-21 have been combined to reflect the actual functioning of the major programs. Specifically, Menthol is included in Domestic Product

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TABLE 25

PROJECTED RESOURCE ALLOCATIONS FOR MAJOR PROGRAMS
DURING THE PLAN PERIOD

	1990	1991	1992	1993	1994
Project ART	82.9	66.2	59.8	48.2	47.2
Sigma/Beta	44.0	45.9	48.9	48.2	47.2
Domestic Prod. Support	58.9	69.4	78.7	82.2	82.2
International Prod Support	24.4	26.2	30.3	34.2	36.5
Operations Support	75.9	79.6	76.7	82.6	82.4
Filtration Res.	20.7	22.4	24.7	23.6	25.0
Paper Technology/ Reduced Sidestream	51.6	46.3	44.0	38.8	37.4
Project Tomorrow	10.5	15.1	17.3	14.1	9.0
Optical Processing	11.2	11.2	8.8	8.8	9.4
Low Tar/High Flavor	15.5	17.3	17.6	19.1	19.1
TSNA	19.6	20.6	20.0	15.0	12.0
LBA	19.4	19.0	21.6	23.4	25.0
New Expansion Process	17.6	17.4	18.0	19.7	19.8
Cast Sheet RCB	9.6	11.1	11.6	10.4	10.3
Project Pact	4.7	4.8	3.6	-	-
Project Ambrosia	8.4	6.8	2.7	-	-
Cigarette with Low Combustion Temp.	-	9.0	13.7	16.8	18.6
Cigarette with no ETS	-	-	-	-	10.4
Sub Total	474.9	488.3	498.0	485.1	491.5
Other Programs	59.1	65.7	73.0	90.9	85.5
Total	**534.0**	**554.0**	**571.0**	**576.0**	**577.0**

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Support; ETS is included in Paper Technology/Reduced Sidestream; Filtration Research includes both the domestic and international effort as well as selective filtration; and Project Ambrosia is folded into Domestic Product Support in 1993 and 1993. Lastly, resources for the two new programs, Cigarette with a Low Combustion Temperature and Cigarette with no ETS, are drawn from those listed under Strategic Goal 6 (Table 21). The tactics for achieving program objectives are, of course, the Operational Plans that are developed for each program.

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Appendix A

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APPENDIX A

PM EUROPE

RESEARCH AND DEVELOPMENT

THREE YEAR PLAN 1990-1992

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RESEARCH AND DEVELOPMENT PLAN 1990-1992

EXECUTIVE SUMMARY

The Research and Development Department will concentrate its efforts during this 3-year planning cycle on product issues. This emphasis will be supported by its four major technical departments and three support functions whose aim it will be to strengthen the R&D position in key technology areas within PME. The R&D strategic goals include providing the support to maintain our current market share through product maintenance, developing innovative product lines which ensure an increase in our market share, and providing for the Company the technology base necessary to address pressures from external sources.

During this planning cycle the R&D Product Development group will improve existing products and develop new products which meet the approved Marketing requirements. Specifically by the end of 1990 Product Development will complete the work on tube-in-tow filters extending this technology to 6 mg products. During this same timeframe we will complete and present to Marketing for their consideration final products which incorporate total blend expansion, concentric filters, in order to enhance the subjective characteristics of low delivery products and CA web filters which enhance filtration efficiency without compromising on RTD. Furthermore Product Development has initiated a collaborative program with Marketing research in order to monitor consumer perceived product performance of our key brand families and to ascertain if current market dynamics can be correlated with subjective product attributes. This is a continuous program which is aimed at understanding our customers as well as our product lines.

Quality Assurance and Technical Services will focus its attention on the standardization of key elements in support of our product monitoring program in order to guarantee product quality consistency and uniformity. In order to accomplish this task, QA will continue its efforts to standardize (PME affiliates and PM USA) analytical methods related to the analysis of ingredients, filter additives and adhesives. QA will continue the revision of packaging material specifications and complete this work by the end of 1990. Furthermore QA will develop a Pan-European data treatment system for incoming inspection, improve the existing supplier rating system with the introduction of both productivity and commercial aspects, and introduce for selected items an acceptable procedure based on supplier certificates, audits and quality records (1991-1992). Quality Assurance will take advantage of international task forces (CORESTA/ISO) in order to adapt current PME procedures to new international requirements. A considerable amount of time will be spent by QA in order to develop new and innovative approaches to presenting cigarette information in such a way as to enable the correlation of market

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data to cigarette characteristics. This project will enhance our existing monitoring function and will strengthen our basic knowledge about competitive products.

The Process Development department will continue to develop programs aimed at Product and Process improvement within affiliate and licensee manufacturing sites. Our current tobacco optimization program will focus its attention on process standardization across all affiliates for key processing steps and will significantly contribute to cigarette firmness improvement as well as tobacco yield improvement.

The Research department is a vital sector within R&D which provides for the rest of the R&D departments a sound scientific base through continuous development of analytical methodology. The Research department is focusing its efforts in assisting Product Developemnt in the development of new and innovative products for our PME markets. This department will continue to provide basic monitoring services to all of PME in the areas of pesticides, humectants, CF, MH30 and tobacco additives in order to ensure full compliance with local regulations. The Research department has the added responsibility to develop viable strategies in order to address key scientific issues and pressures from external sources.

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THREE YEAR PLAN 1990-1992

RESEARCH

PRESENT POSITION

- Analytical support in all areas of cigarette manufacture has been intensified. In conjunction with Packaging Engineering EEC and PM suppliers an ongoing program is directed at finding an offset printing system which is subjectively acceptable.

- Blend components and ingredients used by PMG are regularly screened to ensure compliance with the German Food Law.

- Consumer and machine smoking studies on channel-ventilated cigarettes have been carried out in support of a large R&D program. A machine smoking collaborative study is in progress to meet the CORESTA Task Force 10 objectives.

- A current program with PME Process Development is aimed at optimizing oriental tobacco treatment in primary processing. Treated tobacco has been favorably evaluated by Panel A.

- In-house research programs on ETS in offices are continuing with extended analytical coverage. Assessment of the methods through collaborative studies is pursued. Support and control of independent laboratories subcontracted to work on ETS is continuing in cooperation with S&T.

- The program to investigate the influence of filler density on sidestream smoke yield was completed. The program to modify sidestream smoke yield and composition by cigarette construction and filler modification is continuing. Sidestream and mainstream smoke determinations as support to Product Development PME and PM-US continue to be performed.

- A four-channel single-cigarette apparatus has been set up for the routine measurement of sidestream smoke yields in nicotine, particulate matter and carbon monoxide. The monitoring of additional parameters in sidestream smoke is under development.

- New pesticides listed in the Decree on the Amendment of the German Pesticide Regulation of May 1989 and in the USDA regulation have been included in our pesticide monitoring program.

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- EEC, EEMA and competitive brands are regularly screened for selected filler and smoke components.

- InfraAlyzer methods to determine main components in base and application flavors were developed and are being implemented in PME QA and in PMG Munich and Berlin factories.

- A tobacco-identical biocontrol system as an alternative to existing traditional preservatives was developed.

- The mechanism of microbial off-taste formation caused by uncontrolled cut-tobacco dryer conditions was established.

- Tobacco-identical inhibitory compounds were isolated from Flue-cured and Oriental tobacco and are presently being identified.

- Microbial support to affiliates and licensees to control shelf life in tobacco storage and processing is continuing.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

THREE YEAR PLAN 1990-1992

RESEARCH

I. AGGRESSIVELY SUPPORT THE CURRENT BUSINESS

A. Objective

Improve product quality by the development and application of analytical methodology.

Strategies

Develop new approaches to identify and solve off-taste/off-odor problems in PM products.

Maintain and further develop a program to correlate subjective and chemical changes in cigarettes caused by different printing techniques used for packaging materials. Extend program to the offset printing process.

Assure that sidestream yields of PM products are in compliance with future internal guidelines and provide regular market- place surveys.

Intensify research towards on-line analytical methodology to be implemented in production areas.

B. Objective

Monitor the compliance of blend components and ingredients with the legal requirements in both EEC and EEMA regions.

Strategies

Maintain and continue to upgrade the monitoring program for chemical constituents in all materials going into the fabrication of a cigarette so as to be in complete compliance with specific laws witin PME.

Continue monitoring of pesticide residue levels in leaf tobacco and finished products.

Extend program to new pesticides as requested by PME

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Management and/or legal requirements (EC regulations)

Strongly support Leaf Department in controlling the MH-30 situation in PM brands.

C. Objective

Assess the impact of environmental tobacco smoke (ETS) on indoor air quality in order to provide maximum technical assistance to corporate affairs.

Strategies

Continue the in-house program to monitor selected ETS components in real life environments during the course of controlled smoking sessions.

Support independent outside ETS studies in direct cooperation with PME-S&T aimed at assessing ETS exposure and its impact in real life environments.

Improve on existing analytical methods for assessment of ETS exposure, e.g. find more restrictive determinations of ETS related to respirable particulate matter.

D. Objective

Support corporate affairs in defending industry position.

Strategy

Actively participate in inter-company analytical programs leading to industry and government accepted methodology.

II. DEVELOP PRODUCTS WHICH ADDRESS THE CONSUMERS' DESIRE TO REDUCE THEIR HEALTH CONCERNS

A. Objective

Acquire technical information necessary to develop new products or to modernize existing ones so as to have acceptable products with excellent commercial quality available.

Strategies

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Assure that PM products are competitive with respect to consumers' perceived health concerns and recommend required improvements.

Reduce specific biological activity of cigarette smoke condensate by changing its quality and/or concentration so as to maintain the consumers subjective acceptability of the modified products.

III. DEVELOP PRODUCTS WHICH ADDRESS THE PUBLIC'S DESIRE TO REDUCE ENVIRONMENTAL TOBACCO SMOKE

A. Objective

Develop basic knowledge to focus on problems related to the development of new products and which addresses the environmental tobacco smoke (ETS) issue.

Strategies

Investigate the formation of undesirable components in aging cigarette sidestream smoke and develop an understanding of how to control them.

Continue to study the effect of cigarette construction, cigarette paper and filler additives on sidestream smoke composition and in particular on gas phase components and total gas phase yields.

Extend existing data base for prediction sidestream delivery of cigarettes based on their design and blend composition.

Investigate ways to diminish the sensory impact of environmental tobacco smoke.

IV. DEVELOP NEW PRODUCTS WHICH CAN BE MARKETED USING CURRENT STRATEGIES AND GIVE SMOKERS A PRODUCT ADVANTAGE

A. Objective

Contribute to the development of new or improved products designed to give tailored delivery profiles by providing analytical data and developing new analytical methodology to meet the eeds of Product Development.

Strategies

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Maintain the program for the measurement of puff-by-puff mainstream smoke deliveries of selected components.

Continue to develop methods to identify flavor and blend components in tobacco and in cigarette filler.

V. IDENTIFY NEW PRODUCT/ INTERNATIONAL PROCESS CONCEPTS AND DEVELOP PRODUCTS/PROCESSES FOR THE INTERNATIONAL MARKET

A. Objective

Improve the taste characteristics of tobaccos

Strategy

Develop a program to correlate subjective, chemical and microbiological changes in cigarettes caused by primary processing practices.

Improve primary processing with respect to tobacco sensory characteristics by establishing microbiological specifications.

VI. PROVIDE A BRAOD FOUNDATION OF BASIC RESEARCH THAT WILL GENERATE NEW PRODUCT CONCEPTS IN 5-15 YEARS

A. Objective

Maintain the scientific, technical and innovative base required to support PME's emerging business.

Strategies

Develop technical expertise through the training of Research personnel

Encourage innovation by patenting and publishing research results.

B. Objective

Continue basic research on and develop applications for tobacco microbiology within PM which will favorably impact on new or existing products and/or processes.

Strategies

Continue research towards more appropariate natural preservatives to provide alternatives to existing systems.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Establish a program to investigate the bio-removal of tobacco compounds.

Study the physiology of identified bacteria as a function of tobacco water activity and heat treatments in primary processing.

Study the metabolism of these bacteria and evaluate their impact on the subjective quality of the finished product.

Set up microbiological specifications in order to ensure a constant product quality.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

THREE YEAR PLAN 1990 - 1992

PROCESS DEVELOPMENT

PRESENT POSITION

The Process Development Division establishes and implements programs aimed at product and process improvements for affiliates and licensees in order to contribute efficiently to the regional goals on quality, cost and flexibility.

- During the past year the tobacco process quality program was further extended and now includes strip-data from three affiliates. The comparative factory results were periodically reviewed with affiliates and the reporting format was adapted to better suit the needs of the users. This program was extended into the regional primary optimization program which was established and presented to various levels of affiliate management.

- Further improvements were made to the miniprimary resulting in savings of cycle time and increased flexibility.

- TMCI sheet development trials were carried out in Onnens and assistance was given to TSA Spain for the ASTA sheet program.

- ET capacity increase was implemented in BOZ and Munich.

- HT for cut rag and stems was evaluated for PM Asia.

- The evaluations of US Burley strip pack moisture and of various reconstituted tobaccos were completed.

- Burley capacity increase including temperature profile modification was completed in BOZ.

- Qualification trials on ET for Tabacalera, Spain were completed and the Dickinson Admoist system was evaluated for ET reordering.

- Assistance was given to PMG in Munich for the AMF Legg dryer start-up, to EEMA AOD for primary reviews in licensee factories and to PM Brazil and Argentina for stem process improvements.

- A presentation was given at the 1989 Tobacco Colloquium.

- The FC and BU Malawi study is in progress and the standardized technical data sheets on PME primary unit operations have been completed for BOZ.

- The human resources of the group were strengthened with two new engineers.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

THREE YEAR PLAN 1990 - 1992

PROCESS DEVELOPMENT

PRESENT POSITION

I. Aggressively support the current business, and identify new process concepts which would strengthen PME's position in the industry.

A. OBJECTIVE

Develop and implement programs aimed at product and process quality improvements and consistency for affiliates and licensees of both PME regions.

STRATEGIES :

- Complete the implementation of the tobacco process quality program.
- Evaluate and review tobacco processing product data and trends on a scheduled basis and establish improvement proposals in close collaboration with affiliates.
- Develop and implement an appropriate data transmission, handling, storage and reporting system together with CAD.
- Implement the Tobacco Information Management project in order to consolidate and intercorrelate R&D generated information.
- Assess the impact of screening out shorts at various process steps.
- Implement trial programs adequately as required and further improve planning, data evaluation and reporting.

B. OBJECTIVE

Develop, evaluate and implement new technologies and process applications and further improve existing ones.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIES :

- Implement the ET blend evaluation program in a collaborative effort with PM USA and PME.

- Complete the evaluation of the Dickinson continuous cylinder conditioning and force feed cutting in BOZ and the complete implementation of foreign matter removal systems.

- Continue to assist TSA on their sheet development program as needed.

- Identify technologies in industries similar to ours for potential application to tobacco processing. Follow-up developments with equipment suppliers and evaluate modified processing of specific blend components such as ET, Recon. and HS.

C. OBJECTIVE

Provide adequate assistance to affiliates, licensees and other groups for assessment programs on process quality or blend components.

STRATEGIES :

- Complete the FC and BU Malawi study requested by the Leaf Department and currently in progress.

- Further optimize the operation of the miniprimary and the support laboratory for increased flexibility and improved safety.

- Assist affiliates and licensees in process and product quality assessment programs as needed.

- Follow-up closely the improvement programs with the affiliates in the early stages of the engineering projects.

- Provide assistance to affiliates for start-up of new equipment or modified processing lines.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

D. **OBJECTIVE**

Further improve technology transfer, process know-how, standardization and coordination within PME and with PM USA.

STRATEGIES :

- Standardize processing and product parameters for improved consistency of operations, particularly in the areas of Burley treatment and expanded tobacco production.
- Complete the technical data sheets on primary unit operations for all affiliates.
- Maintain and improve technical expertise by further intensifying on the job crosstraining of new engineers.
- Establish general guidelines for standardized tobacco processing within the primaries.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

THREE YEAR PLAN 1990 - 1992

PRODUCT DEVELOPMENT

PRESENT POSITION

1. MARLBORO

- Cigarettes for blind product testing, in most of the EEC and EEMA markets, were prepared in order to monitor consumer perceived product performance.

- A product optimization program on the PE Marlboro has been initiated. Product candidates for consumer testing will be available in Autumn 1989.

- The total Marlboro product family manufactured and sold in Greece has been significantly improved by bringing the blend and the cigarette construction as close as possible to the PE products.

- Marlboro manufactured and sold in Austria has been changed from LS to KS.

- An improved version of Marlboro Gold sold in Switzerland has been developed and is presently consumer tested.

2. PHILIP MORRIS

- The development of the Philip Morris Ultra Lights 100's has been completed and the product introduced on the French and Italian market.

- The PE Philip Morris Ultra Lights KS product has been significantly improved by lowering the total RTD and increasing the tar delivery from 1.3 mg to 1.8 mg per cigarette.

- A regular KS product delivering 11 mg tar (DIN) has been developed and introduced in a golden pack on the German market.

- A Philip Morris Lights 84 mm product, having a total weight of less than 850 mg (tax class I), has been developed and will be introduced in Sweden in Fall 1989.

3. MERIT

- A 100 mm version of Merit Ultra has been developed for a possible introduction in Italy.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

4. MURATTI

- A new Muratti Ariston (Dial-a-Tar) as sold in Italy having a lower burning rate, which resulted in an increased puff number on the rich setting, has been developed.

- A new American blend type cigarette delivering 6 mg tar and being considered as a possible replacement of the Muratti 2000 cigarette as sold in Switzerland, has been developed and is presently consumer tested.

5. DIANA

- The tobacco blends of Diana KS and Diana Specially Mild KS manufactured and sold in Italy have been standardized which resulted an improvement of both products.

- In a collaborative effort with the Italian monopoly, a slightly modified version of the Diana KS has been developed and is presently sold in France.

6. L & M

- In order to improve the performance of the L&M Mild on the German market, a new cigarette using a modified blend is presently consumer tested.

7. CHESTERFIELD

- At the present time, blind product tests of various Chesterfield candidates are in the field in Germany, France and Belgium. All the results of these tests will be available latest at the end of October 1989.

- A light version of Chesterfield delivering 7 mg tar is presently consumer tested in Switzerland.

8. BRUNETTE

- A blend standardization program of the Brunette product family has been initiated and several product candidates, including a Brunette Extra with a longer filter, are presently consumer tested in Switzerland.

9. BELMONT

- The blend standardization program of the Belmont product family manufactured and sold in Finland has been completed. Consumer research indicated very favorable results for the new product candidates.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

10. STAR

- A new product having lower deliveries and improved taste characteristics has been developed and introduced on the Swiss market.

11. CONSUMER RESEARCH

- In collaboration with HQ Marketing, a study using the French market as a model was initiated with the objective to correlate market dynamics with measurable product attributes in order to get more accurate information on consumer perceived product performance. Initial results are very promising and a decision was made to include, as a next step, subjective data in the form of taste profiles into the study.

- In a combined effort with Marketing research France, a new questionnaire to be used in Consumer Research has been developed and is presently tested. The descriptive attributes used in this new questionnaire are based on consumer interviews performed during Spring 1989.

NEW INNOVATIVE PRODUCTS

1. VITALITY

- The objective of this project is to develop a cigarette delivering a clean, mild and refreshing taste, the "Perrier" of the cigarettes. Based on consumer research conducted in France, a final candidate has been selected for future ISAR tests and/or test markets.

2. PARADOX

- The development of a low tar cigarette (7 mg tar) delivering outstanding taste quality has been successfully completed. This product, which will be introduced in Norway during this Fall and using the brand name "Mega", is equipped with a 33 mm long concentric CA-filter and a 38 mm width tipping paper.

3. PO

- By using the Laser perforation and the total blend expansion technology, we have been able to develop a plain KS cigarette delivering only 9 mg of tar.

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TECHNOLOGY MANAGEMENT

1. BASIC TECHNOLOGIES

- The study having as objective to determine which porous materials (tipping and plug-wrap) have to be used to achieve a specified ventilation level on a cigarette has been completed and the prediction factors have been built into the existing cigarette modelling program.

- Several versions of combined filters including a recessed filter for ultra slim cigarettes (17 mm circumference) have been received from Filtrona LTD and are presently under evaluation. Intertaba is gathering data concerning pricing and feasibility to produce such filters.

2. EMERGING TECHNOLOGIES

- The feasibility and reproducibility of the total blend expansion technology from a processing point of view has been demonstrated. The material obtained by using this technology is presently used for different development of new innovative products.

- We have been able to demonstrate that the tube-in-tow technology significantly flattens the puff-by-puff profile. An industrial production run will be conducted during August in order to get accurate information on feasibility and reproducibility.

- Investigation on filters made at Intertaba using CA-web supplied by Celanese showed 100 % higher filtration efficiency than conventional CA-tow. Further development of this technology is pursued with high priority.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

THREE YEAR PLAN 1990 - 1992

PRODUCT DEVELOPMENT

I. AGGRESIVELY SUPPORT THE CURRENT BUSINESS

A. OBJECTIVE

Improve existing products and develop new products which meet the approved Marketing requirements while meeting standardization and productivity objectives.

STRATEGIES

- Support actively all programs aimed to monitor consumer perceived product performance of our key brand families and initiate, when needed, product optimization programs in order to ensure our competitive advantage in the market place.

- Improve and maintain, in collaboration with Marketing Research, the computerized Model in which Market dynamics are correlated with measurable and subjective product attributes in order to strengthen our understanding of consumer perceived product performance.

- Monitor the evolution of the key competitive products by making optimum use of our current cigarette information activities and ensure quick awareness on competitors' new product introductions.

- Develop and implement a modern project management system in order to optimize the speed and flexibility of the product development process and the allocation of the internal and external resources needed.

- Provide assistance and support to Manufacturing in order to ensure that product specifications are met during the initial production of newly developed cigarettes and ensure that cigarette construction know-how is effectively transferred to the manufacturing centers.

II. DEVELOPMENT OF NEW AND INNOVATIVE PRODUCTS WITH LONG TERM EARNING POTENTIAL

A. OBJECTIVE

Create new and innovative product ideas/concepts for the cigarette market.

STRATEGIES

- Further enhance the interfacing of Product Development and Marketing in the creative thinking process.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

- Keep an inventory of all new and innovative product ideas generated within the company.

- Develop and apply a screening system that can be used to select the most attractive opportunities.

B. OBJECTIVE

Enhance the effectiveness in Technology management in order to improve product and process innovation.

STRATEGIES

- Enhance awareness of Technology worldwide and maintain our Technology "storehouse" up to date.

- Strengthen our know-how on the Technology-Product relationships in order to :

  a) Improve our mathematical prediction models with the ultimate objective of being capable to predict the mainstream and sidestream smoke deliveries on a per puff basis whenever a cigarette component is exchanged and conversely whereby the system selects component required to achieve product objectives.

  b) Select and assess key technologies needed for the development of new and innovative products.

- Develop specifically the following selected technologies to the stage of industrial application :

  - Total Blend Expansion
  - Tube-in-tow Filter
  - Concentric Filter
  - Tobacco Sheet Filter
  - CA-web Filter
  - Tobacco Sheet Cigarette Wrapper
  - Dual Cigarette wrapper
  - Tobacco Extract Flavors
  - Concentric tobacco Rod

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THREE YEAR PLAN 1990 - 1992

QUALITY ASSURANCE AND TECHNICAL SERVICES

PRESENT POSITION

1. STANDARDIZATION

- The incoming inspection procedure for materials has been reviewed. For several items the system was changed from a lot-by-lot to a skip-lot inspection.

- A new instrument for colour and whiteness measurements was evaluated. A new instrument for the determination of tow crimping and total denier was designed and constructed. Both equipments were introduced in all affiliates.

- Various methods for the analysis of casings and flavours were reviewed and standardized with PM-USA.

- A standardized reporting for defective/non-conform deliveries was introduced in all affiliates. Based on this information a supplier quality rating system was started.

- The new PM infestation control program was introduced in all factories and warehouses of the affiliates. The program, based on prevention, consists of thorough cleaning and infestation detection with pheromone trapping.

- A task force including all smoke lab supervisors was set up with the objective of improving the reproducibility of the results produced within the region. The group met twice in 1989 and reviewed the existing procedures/methods used in their laboratories. The monitoring results already indicate an improved consistancy.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

- A monthly collaborative study (monitoring) was introduced among the European discriminative panels (B). This is an attempt to estimate the "closeness" of their subjective evaluations.

- The level of standardization within PME on critical QA methodology is undergoing evaluation with the aim of eliminating unjustified differences.

2. CORESTA

- Considerable effort has been dedicated to the development of a revised method for the analysis of cigarette smoke deliveries. The new method, expected to be available during the autumn 1989, should be appropriate to all cigarettes including channel-ventilated.

3. SASO (Saudi Arabian Standards Organisation)

- The air-conditioning installed in the laboratory in Riyadh under our responsibility is running according to ISO standards. However, the reduced level of knowledge of the laboratory personnel has required that intensive and extensive training be provided in Neuchatel, Riyadh and lately in Richmond. This project was handled in very close cooperation with EEMA Corporate Affairs, TTG, R&D and QA-PM/USA.

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4. Visual Inspection

- The new visual inspection handbook, prepared in cooperation with PM-USA, is nearly finished. All defect definitions have been agreed upon and illustrations as well as translation into French, Spanish, German, Dutch and Italian are currently being prepared. The manual intended to be used in all PM locations, will be printed in the USA and is expected to be ready by end November 89.

5. Filter Monitoring

- The monitoring of the main quality related characteristics of the filters was initiated. Reports including results from all affiliates will be issued periodically. The aim of this effort is to improve the quality of the filters wherever necessary using the experience gained elsewhere.

6. Firmness Monitoring

- The concept of "adjusted" firmness was introduced simultaneously with the publication of the first "firmness monitoring report". The results presented in a normalized way enable to compare processes more objectively and therefore allow for the identification of opportunities for improvement.

7. Glues

- Two new tipping glues were qualified and introduced in the affiliates. They show better machineability and improved product quality.
  The development of a natural seam glue as an alternative to the starch paste has not been successful thus far.

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8. Tobacco monitoring

- New cutters for TLA-tobaccos are under evaluation. The study aims at improving the quality of the cut-filler and the reliability of the results. Standardization with PM-USA will continue to be another objective.

9. Assistance to Licensees

- A B-type panel was implemented in MTI-Bologna. On-site visits with the objective of improving visual quality were made to Algiers (3), Hungary, Italy, Poland (2), Czechoslovakia and East Germany.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

THREE YEAR PLAN 1990 - 1992

QUALITY ASSURANCE AND TECHNICAL SERVICES

I. AGGRESIVELY SUPPORT THE CURRENT BUSINESS

A. Objective

Ensure, within the framework of Quality Assurance, the standardization of procedures and analytical methodology in order to guarantee quality consistency and uniformity of our products throughout PME. Ensure coordination with PM-USA.

STRATEGIES

1. Incoming Inspection

- Continue the revision and updating of methods used for the analysis of ingredients, filter additives and adhesives. Complete new specifications by 1991. Standardize with PM-USA.

- Continue the revision of packaging material specifications and complete it by end 1990.

- Develop a pan-European data treatment system for incoming inspection.

- Improve the existing supplier rating system with the introduction of both productivity and commercial aspects.

- Introduce for selected items an acceptance procedure based on supplier certificates, audits and quality records.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

2. Subjective Testing

Review and standardize the methodology used for taste evaluation while considering the results of the monitoring initiated in 1989.

3. CORESTA/ISO

Participate in the company's efforts leading to the approval of appropriate testing methods of ours and competitors' products with special emphasis on channel-ventilated cigarettes.

4. Analytical smoking

Take advantage of the existence of the task force created in 1989 to adapt current PME procedures to the new requirements of CORESTA/ISO methods when the latter are enforced. Another major objective of the referred task force is to harmonize the procedures for the quality assurance of the data.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

B. Objective

Establish and maintain efficient product auditing systems in order to ensure optimization of product quality.

STRATEGIES

1. Material evaluation/testing

. Continue audits of main suppliers of non-tobacco materials.

. Selectively reduce the material inspection in the laboratory for standard materials.

2. Cigarette Information

. Review current cigarette information activities in order to support Marketing and Product Development with information that reflects the market situation. Ensure quick information on competitors novelties.

. Study, with Product Development, the possibilities to use the existing data base to produce comprehensive reports on important cigarette properties e.g. Tar/SN ratio, Tar per puff, etc. This information would enable to correlate market data to cigarette characteristics.

. Develop the existing monitoring function for cigarette information laboratories to cope with the increasing number of official laboratories in the two regions. Strengthen the contacts among the specialists within our affiliates.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

3. Filter and Firmness monitoring

Make use of the reports created in 1989 in order to identify opportunities for improvement and act as a catalyst within the region for the dissemination of respective technical solutions.

4. Visual Inspection

Introduce in January 1990 the new visual inspection handbook prepared in cooperation with PM-USA. In addition to the standardization between PM-USA and PME, the new manual will offer an increased objectivity of product evaluations.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

C. Objective

Develop Quality Awareness within Philip Morris Europe.

STRATEGIES

1. Workshops / Seminars

Promote the organization of seminars, workshops and quality campaigns within PME Affiliates and Licensees.

2. Training Tools

. Review and update the slide-show "Quality Assurance in the Cigarette Industry".

. Develop a training program on infestation control.

3. Salesforce / Distributors

Protect product quality in the market place by making Quality oriented training programs available to the salesforce and PM distributors.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

D. Objective

Develop product knowledge and master new technologies in order to ensure our technical expertise and responsiveness. Promote the transfer of existing and newly developed technologies within the PME Quality Assurance Departments.

STRATEGIES

1. Tobacco Monitoring

Analyse the physical characteristics of the tobaccos used in PME and correlate them to the yields in primaries and secondaries as well as to the finished product quality.

2. Consumer Perception of Quality

Evaluate the information available on the consumers' perception of cigarette quality. Complete it if necessary and make use of this information for targeted product quality improvement.

3. Machineability of Materials

Identify supplies' specific parameters that influence machineability and develop related testing methods. Ultimately, revise material specifications accordingly.

4. Filter Firmness

Evaluate the impact of filter firmness on machineability and determine acceptable limits (end 89).

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

5. Quality Problem Solving

Make use of visual inspection results to detect common problem areas and propose action plans.

Develop the exchange of information between PME and PM-USA to address and exchange specific quality related improvements e.g. aspect quality.

6. Robotics

Develop and implement a new concept for an automated cigarette information laboratory. Revise the computer applications accordingly.

7. High-speed machinery

Study the impact of increased automation brought about by the new machine generation on the current QA activities. Revise procedures accordingly.

8. PME Affiliates/Licensees

Provide assistance to all manufacturing centers for quality related programs/problems.

9. External Official Testing Laboratories

Ensure that official laboratories test correctly PM products through adequate monitoring and provide scientific assistance in areas that are critical to our business e.g. GCC.

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10. Infestation Control

Assist AOD in the implementation of the new PM infestation control program in the production and storage areas of our Licensees.

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Appendix B

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APPENDIX B

REPORT ON THE MITSUBISHI CORPORATION

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PHILIP MORRIS U. S. A.

INTER-OFFICE CORRESPONDENCE

Richmond, Virginia

To: Dr. A. C. Lilly

Date: 1989 October 23

From: M. Z. DeBardeleben

Subject: The Mitsubishi Corporation

Summary

The Mitsubishi Corporation began over one hundred years ago. However, because of World War II, it has in actuality existed in its present form only since 1954. During the past 30 years, it has become the largest trading company in Japan, based on both pre-tax and net profit. Midterm sales for 1988 reached 6,274.2 billion yen (approximately $44 billion), with a pre-tax profit of 36.5 billion yen. It operates on a fiscal year ending March 31.

The company is diversely engaged in operations in six general areas: fuels, metals, machinery, foods, chemicals, and textiles. It has a broad worldwide information network, with offices or subsidiaries in over 80 countries. The various corporations that bear the Mitsubishi name, e.g., Mitsubishi Petrochemicals, Mitsubishi Motors, etc., are not part of The Mitsubishi Corporation. They are rather part of the pre-war corporation that today are known as The Mitsubishi Enterprises, companies that both do business with as well as compete with each other.

The Mitsubishi Corporation has embarked on a wide variety of joint ventures throughout the world. Of special interest is its agreement with R. J. Reynolds for the sales and promotion of Reynolds tobacco products in Japan. It also has recently teamed up with Combustion Engineering to set up petrochemicals plants in the Soviet Union. Other joint ventures range from the cross-breeding of rice with millet to the development of revolutionary optical fibers to the exploration for oil off the coast of Australia.

It appears that the corporation does business outside of Japan through a series of corporations named "Mitsubishi International." There is such an organization in the United States, another in England, another in West Germany, etc. It is these companies that acquire and track subsidiary companies. Some of these are highlighted below.

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Background

The Mitsubishi Corporation [Mitsubishi Shoji Kabushiki Kaisha] was founded in Japan in 1871 as a shipping concern. In 1893 it became the Mitsubishi Limited Partnership and in 1918 Mitsubishi Shoji, a trading company.

Under orders of the Allied Occupation forces, Mitsubishi was dissolved in 1947 and became 160 smaller companies. These restrictions on major trading companies were lifted in 1952, and by 1954 The Mitsubishi Corporation had reappeared on the business scene.

The 160 smaller companies formed in 1947, however, did not band back together to form the same pre-war conglomerate. Many of these companies had not survived. The 40 that did are known as "The Mitsubishi Enterprises." They are independent organizations, each with separate management, not only doing business with each other but more especially competing for the same business with outside companies. These 40 companies are involved in insurance (life, fire, marine), banking (commercial), heavy equipment manufacturing, real estate, and warehousing. Their one common goal is to safeguard the Mitsubishi three-diamond trademark, used since 1890, that is "a symbol of first-class quality merchandise and service."

The Mitsubishi Corporation is a general trading company -- a "sogo shosha." In terms of profit (both pre-tax and net), it is the largest trading firm in Japan.

	Sales	Pretax Profit	Net Profit
C. Itoh & Co.	7,731.9	23.6	6.4
Sumitomo Corp.	7,086.0	25.0	13.5
Mitsui & Co.	7,072.8	23.3	7.5
Marubeni Corp.	6,658.8	22.7	7.7
Mitsubishi Corp.	**6,274.2**	**36.5**	**16.6**
Nissho Iwai Corp.	5,307.3	8.8	4.0
Toyo Menka Kaisha	2,533.2	7.5	2.3
Nichimen Corp.	2,260.1	7.0	1.6
Kanematsu-Gosho	2,144.0	5.7	0.5

[Midterm sales (November 1988) in billions of yen]

It carries on purchasing and marketing functions in both domestic and overseas markets, has worldwide operational facilities along with an extensive information network, and acts directly or indirectly as financiers for its customers and suppliers in relation to its trading activities. It is responsible for approximately 17% of Japan's total imports and 8% of Japan's total exports [1984 figures]. Mitsubishi has 96 offices throughout the world and 30 subsidiaries. It is involved in over 60 overseas natural resources development projects and over 140 overseas projects involving

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

agriculture, fisheries, iron and steel, shipbuilding, automobiles, machinery, chemicals, edible oils, textiles, warehousing, land development, and hotels. The corporation is spread through 130 cities in 80 countries.

Structure

The Mitsubishi Corporation is comprised of a general administrative division and 25 trading divisions:

Basic Chemical Plant Division
Basic Chemicals Division
Ferrous Raw Materials Division
Fine & Inorganic Chemicals Division
Foods (Commodity) Division
Foods (Products) Division
Fuels Division
General Machinery Division
General Merchandise Division
Heavy Machinery Division
Information & Aerospace Division
Lumber & Paper Division
Motor Vehicle Division
Nickel & Ferro-Alloy Division
Non-Ferrous Metals Division
Plastics & High Performance Chemicals Division
Power & Electrical Systems Division
Project Development & Construction Division
Ship & Rolling Stock Division
Steel Domestic Sales Division
Steel Export Division
Textiles Division

These divisions are grouped into six basic product areas. In order of overall contribution to the company's business they are:

Fuels Group. These divisions deal in crude oil, LNG, LPG, petroleum products, petroleum coke and carbon products, and oil exploration. Through this group, Mitsubishi imports approximately nine million tons of LNG from Brunei, Alaska, Malaysia, and Indonesia. They have discovered oil in Indonesia, Gabon, and the United States.

Metals Group. These divisions handle ores, metals, scraps, semis, and products such as copper, tin, zinc, lead, and aluminum. They are involved in coking coal development projects and iron ore development projects in Australia and Canada, import uranium concentrate, are especially active in the areas of new metals and electronic materials, and are

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

responsible for 14% of Japan's steel exports. In late 1983 the metals group formed the Saijo Materials Center to supply Mitsubishi Electric with silicon wafers and other essential materials. This center developed a revolutionary unmanned transport system using computers and robots that has enjoyed the attention of much of the world.

Machinery Group. These divisions manufacture a wide variety of machinery and equipment for the chemical, petroleum, steel mill, construction, and electronics industries, as well as for ships, aircraft, automobiles, and consumer goods. The group is especially noted for its emphasis on advanced technology integrating computers and information network systems. It is involved in development and construction projects around the world, e.g., the Mombasa International Airport in Kenya, which accommodates widebodied jumbo jets.

Foods Group. These divisions deal in commodities and products: grain, feedstuff, fats and oil, livestock, sugar, marine products, canned goods, coffee, cocoa, dairy products, and general consumer products. They are involved in over 60 joint ventures around the world.

Chemicals Group. These divisions specialize in petrochemical materials, fine chemicals, inorganics, plastics, fertilizers, and agricultural chemicals. They are involved in over 30 joint ventures, including the world's largest salt operation in Mexico, which exports to Japan, the United States, Canada, and Southeast Asia.

Textiles and General Merchandise Group. These divisions import raw materials (cotton and wool) and garments, as well as lumber, paper, packaging products, ceramics, construction materials, tobacco, and beer. They export synthetic fibers, yarn, and fabrics, along with paper, tire tubes, cement, copy machines, televisions, receivers, and photosensitized materials. Through 20 overseas projects they perform technology transfer involving the production of man-made fiber, spinning, weaving, printing, and dyeing. Some of its joint ventures involve pulp products in Canada, wood products in Brazil, silica mines in Australia, tire sales in Australia, and office automation equipment in Canada. The group's future thrust involves office automation and new ceramics products.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Business

The U.S. subsidiary mainly responsible for Mitsubishi's operations in this country is Mitsubishi International Corporation, headquartered at 520 Madison Avenue in New York, but with branch offices in:

California (San Francisco, Los Angeles, Palo Alto)
Colorado (Denver)
Georgia (Atlanta)
Illinois (Chicago)
Michigan (Detroit)
Missouri (St. Louis)
Oregon (Portland)
Pennsylvania (Pittsburgh, Philadelphia)
Texas (Houston)
Washington (Seattle)
Washington, D.C.

Of the major industrial/trading centers in this country, Boston and Miami are notably missing.

We have been able to identify the following subsidiaries of Mitsubishi International:

Agrex Inc. [Shawnee Mission, Kansas]
Coilplus Inc. [Athens, Alabama]
Kux Manufacturing Co. [Detroit]
Machinery Distribution Inc. [Houston]
Memory-Tech Inc. [Plano, Texas]
Mitsubishi Foods (MC) Inc. [San Diego]
Non-Ferrous International Corp. [New York]
Palmco Inc. [Portland, Oregon]
Petro-Diamond Inc. [Irvine, California]

Mitsubishi International has been granted a "brokerage license limited to business related to mergers and acquisitions."

Recent Joint Ventures

Prior to 1984, R. J. Reynolds tobacco products were sold in Japan by MC Tobacco, a wholly-owned subsidiary of Mitsubishi Corporation. In November 1984, Reynolds and Mitsubishi embarked on a joint venture for cigarette sales promotion and merchandising in Japan. The new company, R. J. Reynolds/M. C. Tobacco Company Ltd., was capitalized at 175 million yen, with 70% of this coming from Reynolds along with the president. In 1987

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

this joint venture launched Winston Lights at 220 yen, the same price charged for most Japanese cigarettes.

In June 1989 it was announced that a promising **oilfield** had been discovered in the northwestern Australian continental shelf by **Japan-Australia L.N.G. Proprietary Ltd. (MIMI)**. The company is a joint venture between Mitsubishi Corporation and Mitsui & Co.

In July 1989 Mitsubishi Corporation entered into a joint venture with Inacomp Computer Centers Inc. (Troy, Michigan). The new company, **Computer Supercenters International**, will offer **computers, peripherals, software, facsimile and copier equipment**, as well as desktop publishing services. Inacomp is the fourth largest microcomputer dealer in the United States and has joint development and marketing agreements with **Sun Microsystems Inc.**

Also this summer it was announced that **Helios Inc.**, a joint venture between NKK Corporation and Mitsubishi Corporation, will act as sole sales agent for PCO in Japan. PCO, a subsidiary of **Corning Glassworks**, and with an investment by IBM, is the **largest optical fiber manufacturer** in the United States. The contract with PCO followed Helios' announcement that it had developed a **super-strong optical fiber covered by stainless steel (FIMT, or optical Fiber-in-a-Metallic-Tube)**.

In August 1989, Mitsubishi Corporation, along with Mitsubishi Petrochemical Co. and JGC Corporation, embarked on another joint venture in Brazil. **Oxiquimica S.A.** will be the recipient of **technical expertise on the production of acrylic acid and ester**, with plans to manufacture 40,000 tons of such products per year by 1992.

Mitsubishi Corporation has also planned **a petrochemical plant for producing polyethylene and engineering plastics** in West Siberia in the Soviet Union. For this project, Mitsubishi and its partners, Mitsui and Chiyoda Corporation, have teamed up with **Combustion Engineering, Inc.**, "because of a sense that deals with the communist nation will go faster with U.S. participation." They have additionally employed the same team on a project elsewhere in Siberia to produce **ethylene**.

In another venture, Mitubishi has joined Mitsubishi Motors Corporation and Heavy Industries Corporation of Malaysia (HICOM) to manufacture the **Proton Saga passenger car**.

With Mitsubishi Chemical Industries Ltd., Mitsubishi Coporation has invested in **Plantech Research Institute** for the purpose of **cross-breeding rice with millet**. The long-term goal is to produce a strain of rice that will have greater resistance to disease and pests, more strength to withstand cold and high winds, and a higher photosynthetic capacity.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Most recently Mitsubishi is one of the investors in **Nihon Leisure Card System Co.** The company produces a new kind of **plastic money**, "pay now, buy later," offering the consumer a convenient alternative to carrying a pocketful of change.

Personnel

The Mitsubishi Corporation employs approximately 14,195 people worldwide. Key personnel* are:

Chairman of the Board	Yohei Mimura
President	Shinroku Morohashi
Executive V-P, Chemicals	Shigeru Iogi
Executive V-P, Domestic Operations	Toru Aizawa
Executive V-P, Info Systems & Services	Yoshio Taniguchi
Executive V-P, Metals	Masato Tagai
Managing Director, Administration	Hiroshi Kohiyama
Managing Director, Administration	Shinichiro Ohta
Managing Director, Foods	Enshiro Matsuyama
Managing Director, Fuels	Katsumi Sakamoto
Managing Director, Fuels	Yutaka Yamamoto
Managing Director, Internal Audit, Info & Communication Systems	Juko Okada
Managing Director, Machinery	Takeshi Eguchi
Managing Director, Machinery	Keishi Nakamura
Managing Director, Machinery	Yoshiaki Shibata
Managing Director, Metals	Nobuo Kobayashi
Managing Director, Personnel	Nobukazu Tawara
Managing Director, Planning	Susumu Nishimura
Managing Director, Technical Affairs	Kiyoshi Takahara
Managing Director, Textiles	Michiji Okuzumi

Mitsubishi International Corp. employs approximately 1,000. Some of its key personnel* are:

President/CEO	Minoru Makihara
Executive Vice-President/COO	Yasushi Hotta
Executive Vice-President/COO	Susumu Eto
Executive Vice-President/COO	Kazuyoshi Yanamoto
Vice-President/Secretary	Gordon C. MacDonald
Manager, Public Affairs	Martha Gellens

* Duplicate positions were reported in the same document, indicating that the companies in fact have more than one post of the same title.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Vital Statistics

The companies can be reached at:

The Mitsubishi Corporation 6-3 Marunouchi 2-chome Chiyoda ku P.O. Box 22 C.P.O. Tokyo, Japan 100	Mitsubishi International Corp. 520 Madison Avenue New York, New York 10022

The telephone numbers are:

03 210-2121	212-605-2000

The Duns numbers are:

69-054-6460	00-698-7770

The Mitsubishi Corporation is privately held. The latest full financials which we have been able to gather are for the year ended March 31, 1984. The data from this annual report follow.

cc: M. D. Rosenberg
Central File

2021391175

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

MITSUBISHI CORP.
Country: JAPAN
November 12, 1984

Annual Report:
Consolidated Income Account, yrs. ended Mar. 31 (in millions of yen):

	1984	1983
(1)Total revenue.....	15,815,345	15,682,967
Gross trading prof.....	299,696	288,290
Other income, net.....	17,630	4,478
Interest & divs.....	112,176	118,677
Lease revu.....	4,136	5,249
Total.....	433,638	416,694
Sell., gen. adm. exp.....	241,972	236,256
Provisions.....	12,461	3,616
Interest.....	154,472	171,296
Curr. income tax.....	9,236	6,891
Def. income tax.....	11,070	cr2,874
Equity earn.....	22,334	23,901
Net income.....	26,761	25,410
(2)Earn., per sh.....	Y20.99	Y19.98

(1)From trading transactions. (2)As reported by Co. on average shs.; appropriately adjusted for free share distribution.

Consolidated Balance Sheet, as of Mar. 31 (in millions of yen):

Assets:	1984	1983
Cash.....	124,785	136,734
Time deposits.....	270,379	316,727
Securities.....	79,662	46,425
Receivables, net.....	2,774,717	2,652,942
Inventories.....	332,945	352,098
Advances.....	372,760	366,203
Prepayments, etc.....	46,761	47,887
Total current.....	4,002,009	3,903,254
Investm. & advances.....	448,885	422,847
Receivables.....	970,715	890,661
(1)Net property.....	233,032	207,881
Other assets.....	78,614	88,966
Total.....	5,656,509	5,513,609

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Liabilities:

Loans.....	1,218,841	1,177,548
Debt due.....	173,690	176,465
Notes, acceptances.....	971,893	931,680
Payables.....	1,146,081	1,013,154
Accruals.....	45,396	38,039
Advances.....	338,161	348,324
Deposits, etc.....	57,397	74,758
Total current.....	3,951,459	3,759,968
Staff benefits.....	43,366	40,305
Long-term debt.....	1,229,322	1,292,507
Minority interest.....	6,418	5,031
Comm. stk. (Y50).....	63,760	63,707
Capital surplus.....	83,658	78,198
Legal reserve.....	12,085	11,149
Retained earnings.....	307,815	290,910
Foreign curr. trans. adj.	dr41,374	dr27,993
(2)Treasury stock.....	.....	dr173
Stkhldrs. equity.....	425,944	415,798
Total.....	5,656,509	5,513,609
Net current assets.....	50,550	143,286
(1)Depreciation.....	105,485	99,645

(2)Representing 1,547,868 shs. at cost (1983: 1,547,868 shs.).

Note: Following are income account and balance sheet as converted to U.S. dollars at rate of 224 yen=$1 and 240 yen=$1 as of Mar. 31, 1984 and 1983.

Consolidated Income Account, yrs. ended Mar. 31 (in thousands of U.S. $):

	1984	1983
Total revenue.....	70,604,219	65,345,696
Gross trading prof.....	1,337,729	1,201,209
Other income, net.....	78,705	18,658
Interest & divs.....	500,786	494,487
Lease revu.....	18,464	21,871
Total.....	1,935,884	1,736,225
Sell., gen. adm. exp.....	1,080,232	984,400
Provisions.....	55,630	15,067
Interest.....	689,607	713,733
Curr. income tax.....	41,232	28,712
Def. income tax.....	49,420	cr11,975
Equity earn.....	99,706	99,587
Net income.....	119,469	105,875
Earn., per sh.....	$0.0937	$0.0833

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Consolidated Balance Sheet, as of Mar. 31 (in thousands of U.S. $):

Assets:	1984	1983
Cash	557,076	569,725
Time deposits	1,207,049	1,319,696
Securities	355,634	193,437
Receivables, net	12,387,129	9,301,513
Inventories	1,486,362	1,467,075
Advances	1,664,107	1,525,846
Prepayments, etc	208,755	199,529
Total current	17,866,112	14,576,821
Investm. & advances	2,003,951	1,761,863
Receivables	3,990,933	3,711,087
(1)Net property	1,040,321	866,171
Other assets	350,955	370,691
Total	25,252,272	21,286,633
Liabilities:		
Loans	5,441,254	3,219,712
Debt due	775,402	735,271
Notes, acceptances	4,338,808	3,882,000
Payables	5,116,433	4,221,475
Accruals	202,661	158,496
Advances	1,509,647	1,451,350
Deposits, etc	256,236	311,492
Total current	17,640,441	13,979,796
Staff benefits	193,598	167,937
Long term debt	5,488,045	5,385,446
Minority interest	28,652	20,962
Comm. stk. (Y50)	284,643	265,446
Capital surplus	373,473	325,825
Legal reserve	53,951	46,454
Retained earnings	1,374,174	1,212,125
Foreign curr. tran. adj.	dr184,705	dr116,637
Treasury stock	.....	dr721
Stkhldrs. equity	1,901,536	1,732,492
Total	25,252,272	21,286,633
Net current assets	225,671	597,025
(1)Depreciation	470,915	415,187

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

APPENDIX C

RJR TOBACCO

R&D ORGANIZATION CHARTS

AND

DUAL LADDER DESCRIPTION

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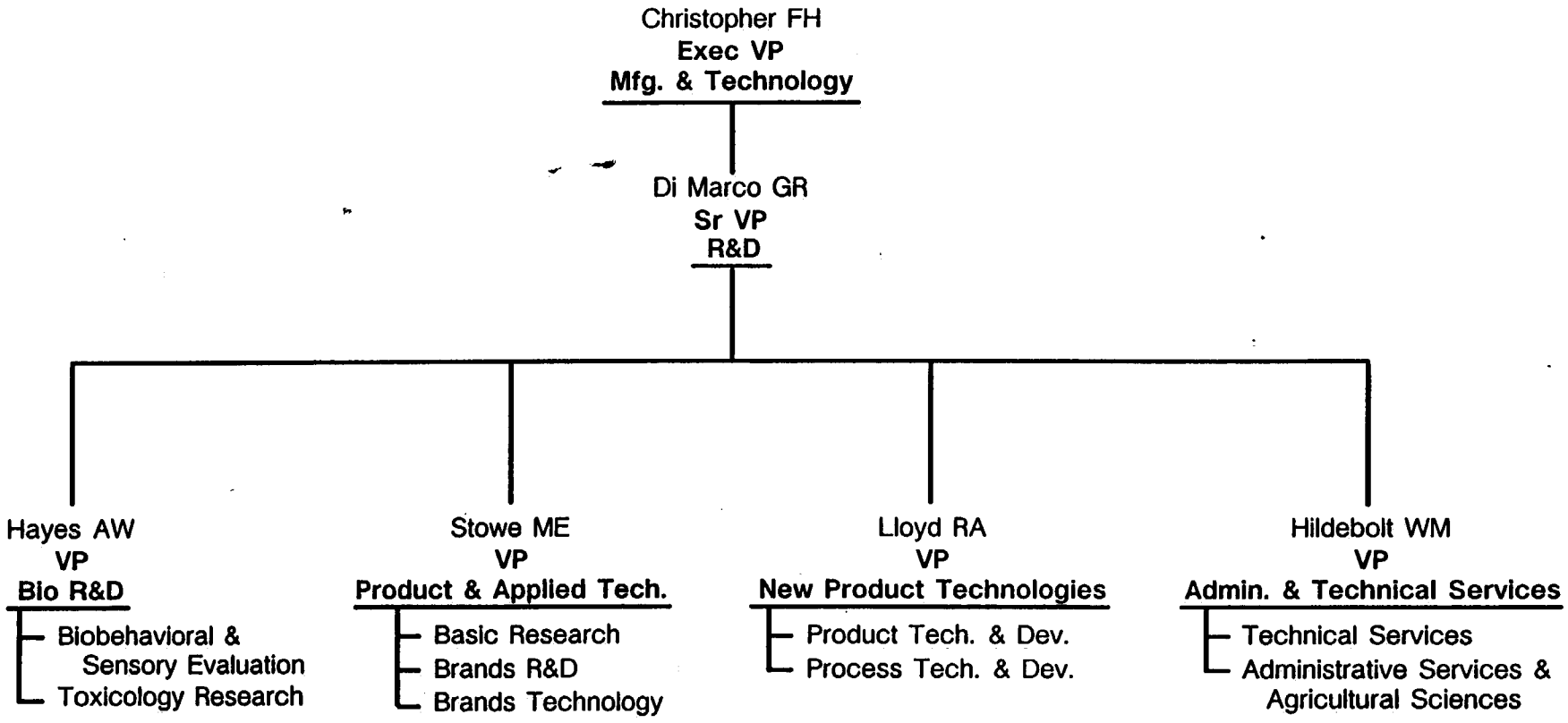
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

rjr-chart.1
11/5/89



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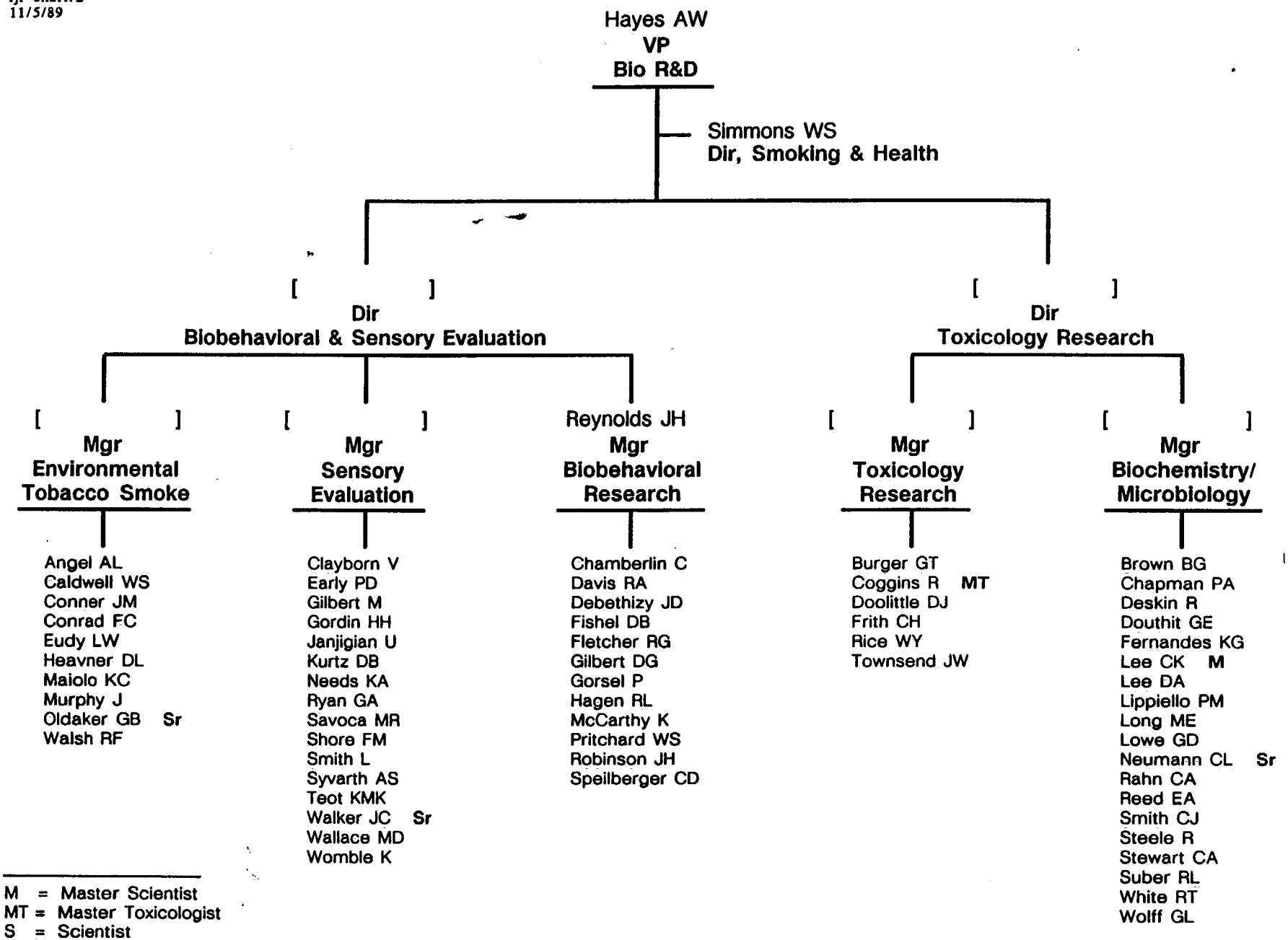
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

rjr-chart.2
11/5/89



M = Master Scientist
MT = Master Toxicologist
S = Scientist
Sr = Senior Scientist

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

rjr-chart.3
11/5/89

Stowe ME
VP
Product & Applied Technology

- Green CR — Principal Scientist
- Sensabaugh AJ — Principal Scientist

DuFour WM — Dir, Brands Technology

[ ] — Mgr, Prod. Design Technology

Bernasek E

Lawrence BM — Mgr, Flavor Technology

Beeson D
Creamer GE
Gignac JM
Harper TA
Ho CT
Lee DB
McGee CD
Mereschak CJ
Pogrow R
Redding JW
Shore RG M
Shu CK
Swicegood KW
Wallace GW

Willard RL — Dir, Brands R&D

Rivers JM — Mgr, Tobacco Standards

Long T

Inman LJ — Mgr, Brands R&D

Trogdon MD

[ ] — Mgr, Statistics

Hawley RW A
Line WB Sr
Mangan PP S
Morgan WT S

[ ] — Dir, Basic Research

Elder JF — Mgr, Analytical Chemistry

Bodnar JE
Borgerding MF
Byrd GD
Cash SL
Chung HL
Clapp WL Sr
Colby DA Sr
Coleman WM
Conner TR
Cooper PJ
Craver MK
Diffee JT
Dominguez LM
Dunn RJ
Fowler KW
Frederickson J
Fulp GW
Gordon BM
Greene GH
Hamlin WC
Hege RB
Hicks RD
Laurene AH
Lovette ME
Lyerly LA
Martin JM
McElroy HG
Milhous LA
Moore DS
Nanni EJ
Ogden MW
Riggs DM
Risner CH
Rix CE
Ruy C
Sadler CI
Seymour S
Sheppard ME
Simmons DF
Slater AM
Stennis VB
Thacker F
Thorne FA M
Uhrig MS
White EL
Young GW

Dickerson JP — Mgr, Chemical Research

[ ] — Prog Mgr, Radio-chemistry

Best F
Crooks EL
Eble A
Lynm D
Montoya M
Morrison CC

Heckman RA — Prog Mgr, Organic Chemistry

Bullings BR
Lawson JW
Newell MP Sr
Perfetti TA M
Powell RH
Schumacher JN M
Wong M

Ingebrethsen BJ — Mgr, Aerosol Research

Boldridge DW S
Brooks JL
Dube MF
Guess HE
Harris JL
Lewis LS
Lockamy FM
Norman AB
Sears SB
Squires WC S
Townsend DE M
Wheeler JP

M = Master Scientist
PM = Program Manager
S = Scientist
Sr = Senior Scientist
A = Associate

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

rjr-chart.4
11/5/89

Lloyd RA
VP
New Product Technologies

[ ]
Dir
Product Technology & Development

Woempner MG
Group Mgr
Mechanical Fabrication

Beard HS
Marritt CR
Nelson JL
Pryor JW

[Butler JP]
Mgr
Applied Packaging Tech.

Barnes RD *
Carespodi DL
Deal PA
Evans SD
Hein CC
Koschak MS
Langley WH
Schechter AH
Svezia J
Yeatts RE

O'Connor LH
Mgr
Materials Development

Baker K *
Banerjee CK *
Carpenter CR
Conrad LJ
Deluca TC
Gentry TL *
Graves WH
Hutcherson RW
Johnson DP
Kay DC *
Lehman RL *
Leonard GE
Morris E *
Resce JL *
Ridings HT *
Serageldin M *
Shelar GR *
Smith KW
Toft HC
White JL
Woods DK
Young HJ

Shannon MD
Mgr
Development

Casey WJ
Clearman JF
Fleming WF
Frye DR
Greene TB
Hauser HA
Hester BL
Oglesby RL
Purin OP
Saintsing BL
Sink TS
Stewart GM
Welch JD

Pugh DR
Dir
Process Technology & Development

[ ]
Mgr
Process R&D

Calleson D
Farrier ES M

Culp GD
Mgr
Mfg Process Engineering

Barnes VB
Burcham WE
French WJ
Hancock LH
Huff RG
Martin JR
Pinkham JR
Shore JW
Sides LW
Stigall JA
Wilkinson DR

[ ]
Mgr
Process Development

Baker MN
Mays CD
Prog Mgrs
Process Development

Brown TW Sr
Butner DC
Clark DC E
Emken RA
McArthur CS
Niven BF
Wagoner MA
Williard DG

Merricks RA
Prog Mgr
Process Engineering

Heikel RJ
Joyce JR
Mitchell JM

[ ]
Mgr
Optical Technology

Clark SW
Collett WR
deMey CF
Hawley NH
Henderson CW
Lassiter WR
McConnell BC
Warren MA
Wright DL

E = Engineer
M = Master Engineer
Sr = Senior Engineer

* These are people previously designated to the "Smokeless Cigarette" division.

NOTE: Both Baker and Mays were promoted to the same position title in the same year.

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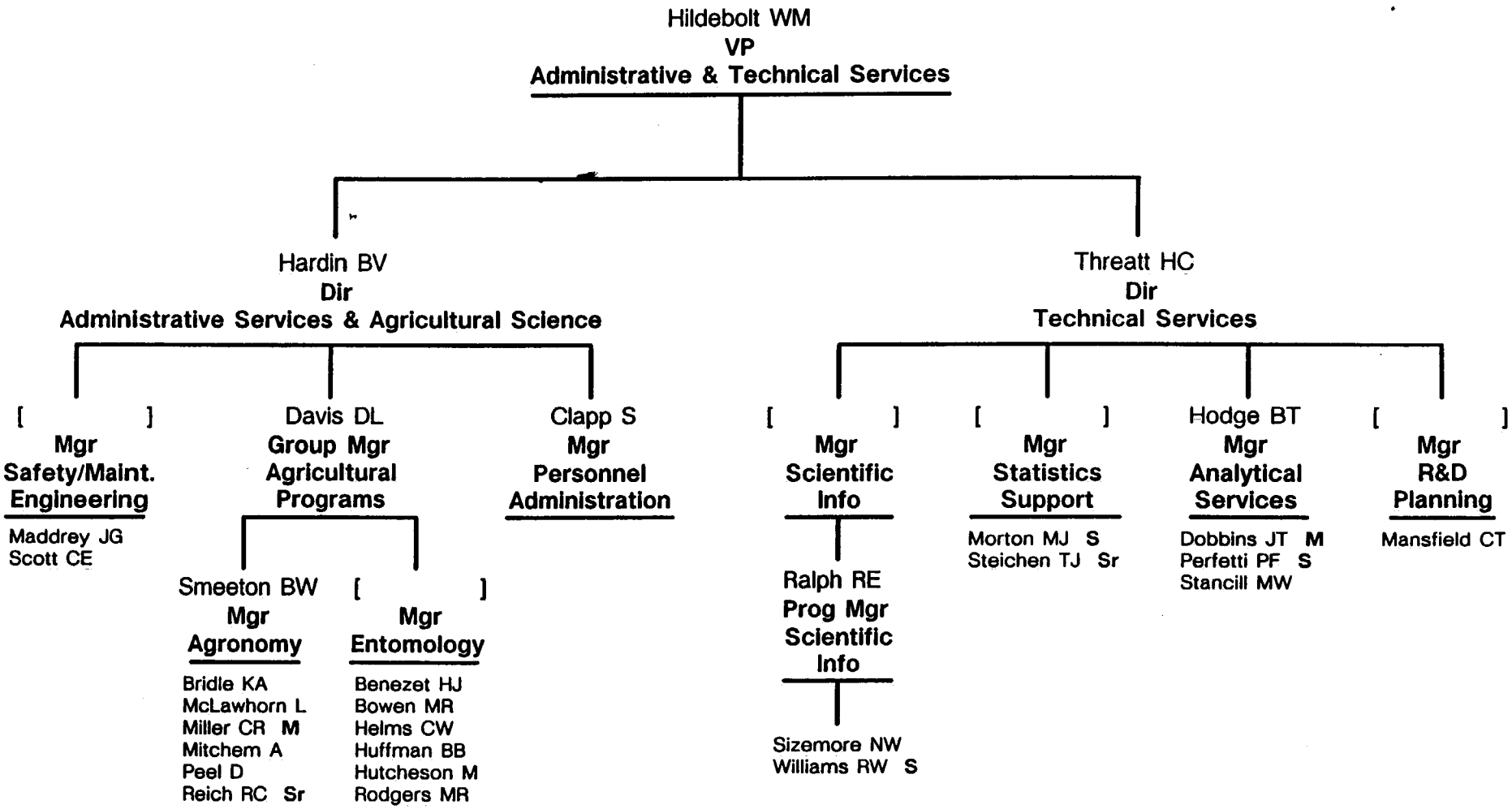
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

rjr-chart. 5
11/5/89



M = Master Scientist
S = Scientist/Statistician
Sr = Senior Scientist/Statistician

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DUAL LADDER SYSTEM

R.J. REYNOLDS
TOBACCO COMPANY
RESEARCH AND
DEVELOPMENT
DEPARTMENT

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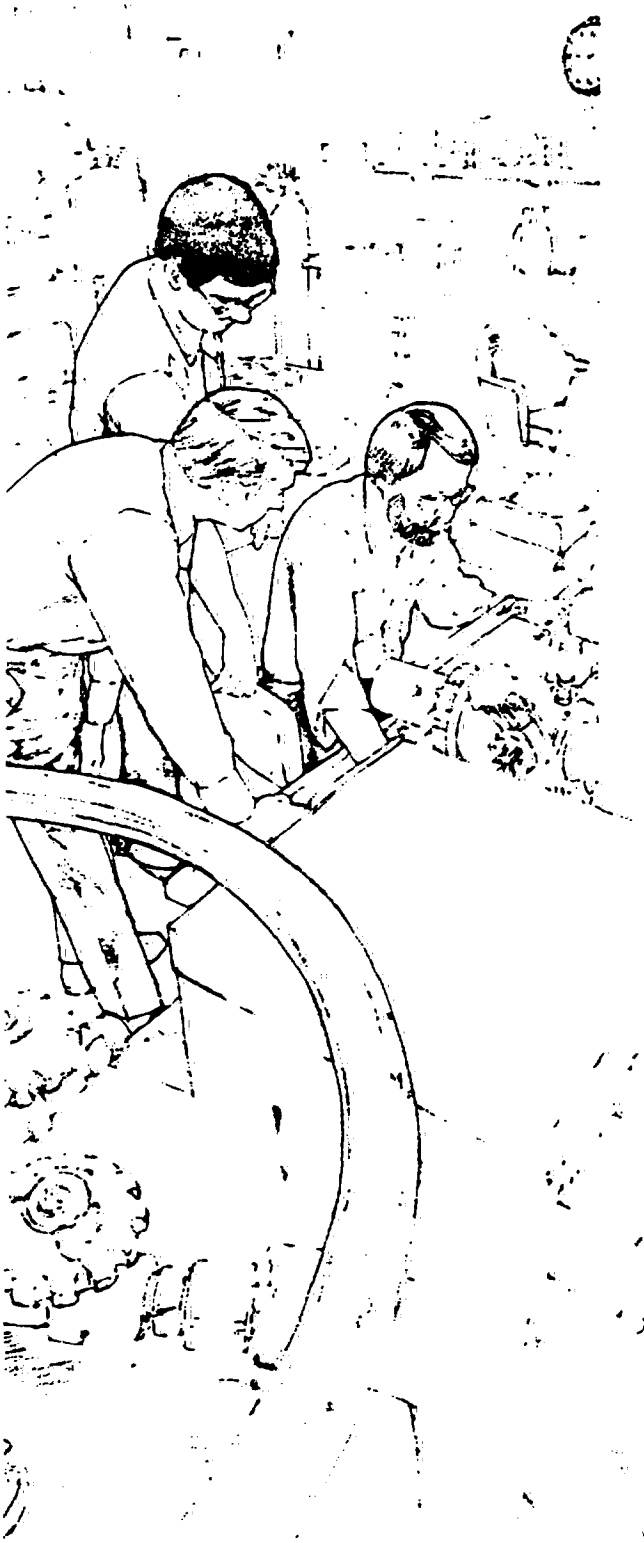

POLICY STATEMENT 1

GUIDING PRINCIPLES 1
Technical Criteria

TECHNICAL REVIEW COMMITTEE 1
Committee Selection

NOMINATION PROCEDURE 2
Standard Nomination
Nomination by Written Proposal

DOCUMENTATION 2
Qualifying Criteria 3
Job Descriptions 3
Sample Documentation 3

VOTING PROCEDURE 4

VOTING RESULTS 4

PUBLICITY AND RECOGNITION 4

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

[redacted]

The Research and Development Department of R.J. Reynolds Tobacco Company has implemented a Dual Ladder System in order to attract, challenge, and retain highly motivated personnel whose primary contributions result in technical achievements. R&D's Dual Ladder System establishes a route of advancement for such qualified personnel.

[redacted]

The management of RJRT Research and Development Department believes that attaining technical leadership is essential for achieving the Company's long range business goals. Past experience indicates that discoveries, developments and major improvements resulting in technical leadership flow largely from the minds and efforts of superior technical personnel. Technical leadership prevails when such qualifying personnel devote themselves to the practice of science and technology rather than to management.

R&D's Dual Ladder System was established to attract and retain people capable of superior technical achievements. This System provides the opportunity for greater rewards, support, recognition and influence. The intent of this system is for the rewards and rate of advancement to be equivalent to those in technical management.

The Dual Ladder incorporates the following positions:

Senior Principal Chemist/Technologist/etc.
Principal Chemist/Technologist/etc.
Master Chemist/Technologist/etc.

TECHNICAL CRITERIA

Employees whose primary contributions are technical in nature - regardless of the functional area concerned - may be eligible for these positions. The essential qualifications for any nominee include 1) a record of superior technical achievements which have yielded results of significant value to RJR, 2) evidence of technical leadership, and 3) an expectation for continually achieving technical results.

Regarding the achievement of technical results, consideration is given to a wide range of achievements, including the following:

- in laboratory or with other R&D related work,
- by discovering or developing new technical knowledge or by applying specialized expertise,
- either in scientific or technological results, and
- in either an individual technical effort or technical leadership of team efforts.

Emphasis is placed on the quality and value of the technical achievements rather than on the quantity or nature of work being performed.

Because of their superior technical skills, nominees for these positions will have commonly worked on problems of high technical risk or unusual complexity.

It should be understood that such "results of value to RJR" may not always provide Company benefits. Even when results are positive, the financial benefit may not be clearly understood by those unfamiliar with the technical aspects of the work product. When making decisions to nominate and to recommend a Dual Ladder promotion, both management and the R&D Technical Review Committee (defined below) must address this issue carefully.

[redacted]

A Research and Development Technical Review Committee was established to ensure that qualified candidates who are promoted to the top technical positions meet the highest professional standards.

COMMITTEE SELECTION

Voting members include a technical representative from each major R&D Group, excluding Managers and Directors. Selections are made after consultation between the corresponding Group Director and the existing Committee. Final approval is made by the Vice President of R&D. The term of appointment for each representative is at least two

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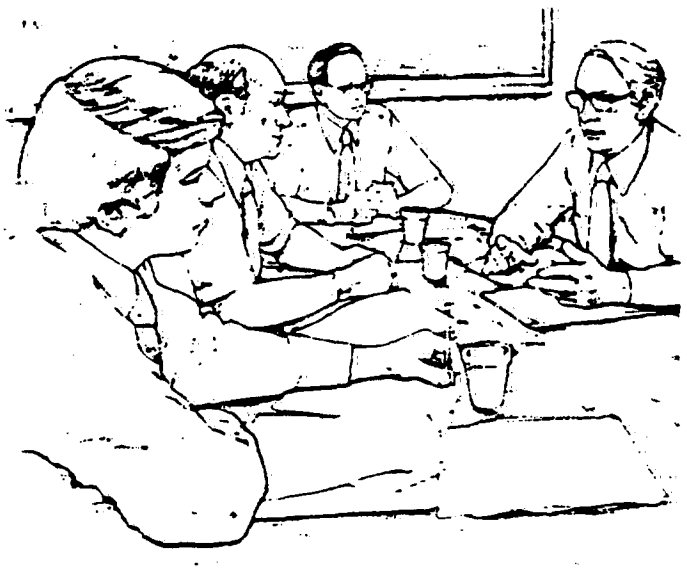

years with staggered replacement.

Two nonvoting members act as Advisors to the Committee. R&D's Personnel Administrator acts as one advisor, and a Group Director - appointed by the Vice President of R&D - acts as the other advisor. Together, members select a Chairperson for the Committee.

[redacted]

STANDARD NOMINATION

Nominations for the top three technical positions are made predominantly by R&D management and are submitted in writing to either the Technical Review Committee Chairperson or the R&D Personnel Administrator. Sufficient, detailed documentation (details follow) must accompany the nominations. A new employee with demonstrated technical achievement and leadership may be nominated directly upon employment.

NOMINATION by WRITTEN PROPOSAL

In exceptional cases, an R&D staff member who feels an employee warrants nomination may submit a written proposal to the Committee. This proposal, showing justification for the nomination, must also contain the same documentation as that of a nomination by R&D management.

To consider a written proposal for nomination, Committee members will first determine its validity. If the proposal does indeed show merit for nomination, the nominee's Manager and/or Director will be contacted to process the nomination accordingly.

[redacted]

Proper documentation must be provided to the Technical Review Committee for a potential candidate to be considered for one of the top three technical positions in the Dual Ladder System. This documentation will provide sufficient evidence to show a candidate's qualifications and strong background of technical performance and achievements.

All material included in a documentation must be pertinent and concise. It is not necessary for the Committee members to review a mass of technical papers to determine the nominee's qualifications and contributions.

When preparing the documentation for a nomination, the qualifications and contributions should be defined in common, understandable terminology. Even though nominations are evaluated by Committee members with technical backgrounds, the members may only be marginally familiar with the nominee's area of specialization.

The following criteria in support of a nomination must be included in the documentation:

1. A **cover letter**, signed by the nominator and preferably endorsed by the corresponding Group Director, including:
   a. Name of nominee
   b. Brief statement explaining reason for nomination
2. The nominee's **Curriculum Vitae**, including:
   a. Educational background
   b. Professional work experiences, both prior to RJR and during RJR
   c. Professional memberships
   d. Professional registration
3. A **synopsis of the nominee's qualifications.**
4. A **bibliography**, listing any of the following if applicable:
   a. Published papers (title, publication, issue, year)
   b. Patents (number, classification)
   c. RJR formal reports (title, number, date)
   d. Major technical presentations (title, place, date)
   e. Additional pertinent bibliographic information

In addition, the following may be included if appropriate:

5. Examples of nominee's key **contributions**, either abstracts/summaries when lengthy or entire documents when brief.
6. A few pertinent **testimonials** from individuals, either inside or outside RJR, who can appropriately judge the nominee's contributions.
   a. Include person's name, occupation, place of employment
   b. Indicate person's experience with the nominee
   c. Cite the testimonial
7. Copies or listings of any **citations** or awards presented to the nominee.

The supporting documentation for a candidate whose nomination for a top technical position has been approved by the Committee is filed with the R&D Personnel Administrator. When the same candidate is nominated again for a higher position, the supporting documentation should only speak to the nominee's work and accomplishments since reaching his/her current level. The R&D Personnel Administrator will furnish a copy of the candidate's preceding nomination documentation to the Committee Chairperson.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

QUALIFYING CRITERIA

In addition to listing the nominee's contributions, evidential qualifications must also be included in a documentation. The following describes the criteria of qualifications:

- Provide evidence showing that the nominee maintains a record of significant technical achievements with emphasis predominantly on its value to RJR. Keep in mind that the best employees may be assigned to the most difficult problems of both technical and commercial high risk.

- Give evidence showing that the nominee is recognized as being a technical leader in his/her area of expertise.

- Provide evidence indicating an expectation that a nominee continues to achieve technical results.

All evidence given in support of the nominee's qualifications will reflect the type of work performed by the nominee. Because of the differences in technical fields, the qualifications will be extensive and varied.

JOB DESCRIPTIONS

Nominees will fulfill the criteria for qualifications to different degrees simply because of the nature of specializations. Consequently, it is difficult to express in words an objective measure of these different degrees that are required in a qualification.

An attempt has been made, however, to differentiate the qualifications among the top three technical levels. At the end of these procedures three generic job descriptions are included to show the attempted differentiations. Ultimately, differentiation of the qualifications for these job descriptions resides in the judgment of the nominator and of the Technical Review Committee.

SAMPLE DOCUMENTATION

To assist the nominator in preparing documentations for candidates, the following lists hypothetical evidence for the three qualifying categories. Keep in mind that this is a representative sample and is intended solely as a suggestion.

This outline formation is part of the example and does not necessarily have to be followed as such.

I. **Contributions to RJR**
(Interpret contributions broadly and include both tangible results and results not easily connected to a specific dollar amount.)

A. Successful project accomplishments that have enhanced RJR's business goals. (Examples):
1. New brands
2. Established brand maintenance and improvements
3. Technical design (cigarettes, equipment, processes)
4. Cost saving contributions (ingredients, processes, etc.)
5. New flavors and flavoring technology
6. New analytical methods
7. Improved understanding of the use of tobacco products
8. Effective translation of brands into manufacturing
9. Development or implementation of new or improved services which:
   - are more cost effective,
   - extend R&D capabilities
   - improve quality, quantity and clarity of results
   - reduce R&D project time and magnitude
10. Meaningful, scientific defense against external factors (e.g., smoking and health attacks and litigation, regulations)

B. Patents.

C. Significant publications in scientific literature or trade journals.

D. Intangible results:
1. Environmental protection
2. Product acceptability

E. Results that were technically successful but not commercially successful.

F. Technical results where the work was valuable for decision making or direction setting.

II. **Evidence of Technical Leadership**

A. Evidence that the nominee is effective in introducing 'leading edge technology' into general R&D use.

B. Recognition from co-workers as a consultant in the nominee's field of expertise, i.e., a "gatekeeper".

C. Nominee's ability to move technology from his/her own sphere elsewhere.

D. Active participation in appropriate technical societies, including presenting papers, holding office, participating in workshops, symposia, editorships, etc.

E. Established external professional contacts in field of specialty.

F. Demonstrated professional excellence:
1. Acceptance of results in scientific/technical literature or trade journals
2. Testimonials from RJR co-workers and/or from outside experts in the field
3. External recognition i.e., invitations to lecture, citations or awards, literature citations
4. Teaching or training skills

III. **Expectation of Continuing Technical Achievement**

A. Technical attributes:
1. Creative and original scientific thinking
2. High level of experimental skills
3. Unusual problem solving ability
4. Broad and current knowledge of the literature

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

B. General evidence of initiative and productivity

VOTING PROCEDURE

Once an employee is nominated for a Dual Ladder promotion, all members of the Technical Review Committee must be present to consider the nomination. The Committee voting members cast their decision on secret ballots which are then counted by the Committee advisors. (If a Committee member has been nominated, that member will not participate in any part of the nomination process.)

Nomination approval is reached with a unanimous vote or with only one dissenting vote. More than one dissenting vote disqualifies a nomination. The advisors do not announce the actual count; they only indicate whether the nomination was approved or denied.

An abstaining vote on the first ballot of a nomination will automatically require further discussion of the nomination. Abstaining votes on later ballots will automatically be considered a dissenting vote.

VOTING RESULTS

Additional information on the candidate may be requested before the Technical Review Committee feels a decision can be reached. The Committee Chairperson is responsible for obtaining any requested information from the nominator. In addition, Committee members may contact individuals, other than the nominee, who are in a position to furnish information concerning the nominee's qualifications and/or contributions.

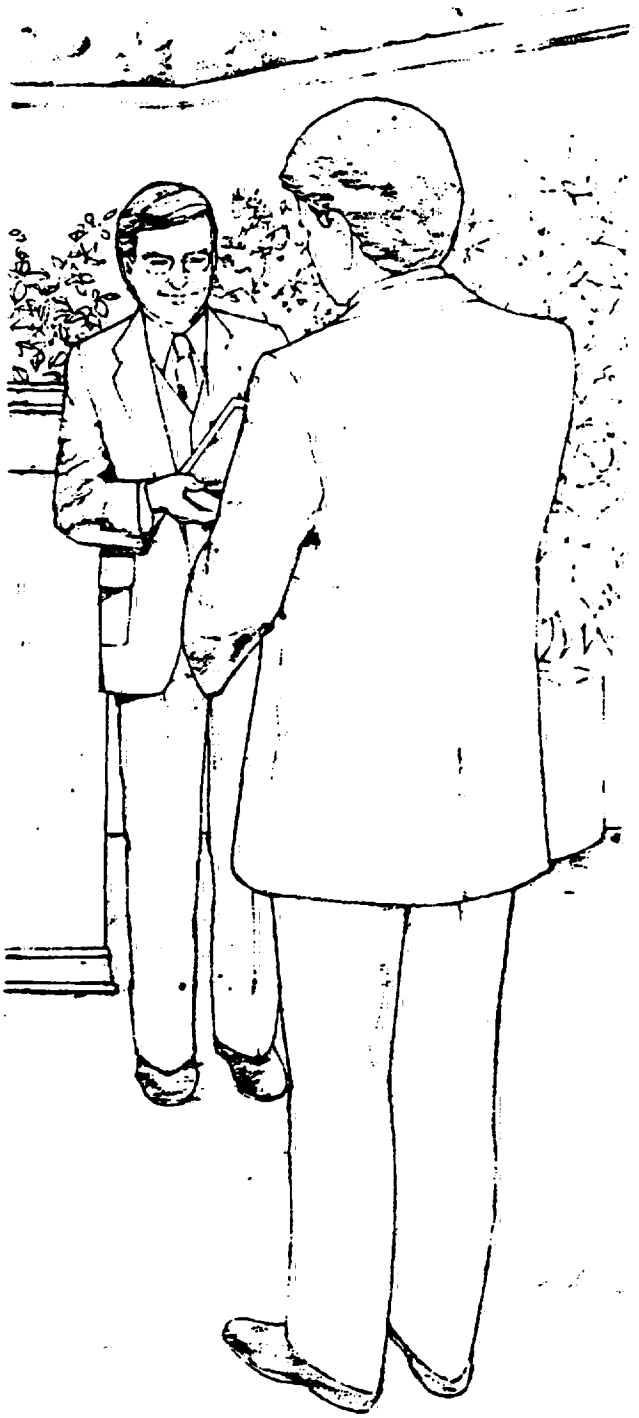
Once a nomination is thoroughly evaluated and a decision is reached, the Committee Chairperson submits a written report to the nominator, indicating the Committee's recommendation. This report will also include justification for either nomination approvals or nomination denials. Clearly identified reasons for denial can provide valuable guidance to both the nominee and the nominator.

The Committee will act as expeditiously as possible on the nomination. Recommendations on the nomination should be reached within 60 days.

If the nomination is approved, the Committee Chairperson will present the recommendation to R&D's Vice President. Should the nomination be denied, the nominator may make an oral appeal to the Committee. Following this appeal and if dissension still remains, the nominator has the recourse of a final appeal to the Vice President of R&D.

PUBLICITY AND RECOGNITION

Appropriate publicity within and outside the Company will be provided for those employees promoted to the top three technical positions. Once the Technical Review Committee approves a nomination and the promotion is processed through the normal Company channels, a certificate recognizing the candidate's accomplishment will be presented to the employee by the Vice President of R&D at the monthly staff meeting. An announcement of the promotion will be prepared and submitted to both RJRT and external news organizations for publication.



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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

LEVEL OF EXPERTISE

The incumbent is recognized as a national/international authority in one or more specialties of tobacco science, development, and/or related areas. He/she

1. Applies advanced scientific and engineering principles, concepts and technologies in developing original R&D programs.
2. Is responsible for maintenance of the highest level of competency in his/her area of expertise and to explore new ways of applying this knowledge to solve R&D problems.
3. Is responsible for maintaining an up-to-date awareness of emerging technologies and scientific results which may have potential impact on the Company. This includes maintenance of regular, personal contact with a diversity of external scientific and technological experts.

LEVEL OF R&D EFFORT

Functions

Technical Leader - Develops and directs the solution of complex research problems where little or no precedent exists. Innovation is required which may extend boundaries of existing knowledge. Provides research and development leadership at the R&D level in a specific technical field in which the individual is recognized as a national/international authority.

Planning - Establishes technical objectives of projects, directs, and may participate in R&D efforts.

Execution - Plans and executes the most complex projects in area of expertise and provides consultation and guidance throughout RJR R&D relative to same.

Communications - Monitors R&D project outcomes and the recommendations of lower-level technical staff. Evaluates the quality of technical results and reports to senior R&D management on the strengths and weaknesses of effort. Suggests changes necessary for improvement of technical results. Oversees the preparation, presentation and follow-up of major proposals. Contributes to and directs the preparation and presentation of research reports to RJR management and the professional community.

Advises R&D management, technical staff personnel and other functional company groups concerning the solution of problems related to his/her area of expertise.

RESPONSIBILITIES

Technical Content- Assures that the technical results at RJR, related to his/her area of specialty, are at the state-of-the-art and of the highest quality.

Schedules - Establishes appropriate project schedules and deadlines.

Budgets - Assists R&D management in the preparation of budgets for R&D projects in his/her area of responsibility.

Evaluations - Evaluates the performance of technical staff and technical support personnel.

EDUCATION & EXPERIENCE

Ph.D. with 15+ years of experience.
M.S./B.S. with 20+ years of experience.
Non-degreed with 25+ years of experience.

HUMAN RELATIONS SKILLS

Must be able to interface with and influence individuals in key positions both within and outside of RJR.

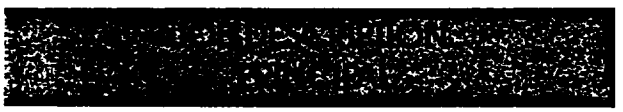
Relationships - Such relationships are critical to the successful execution of this position.

Internal - Regular and extensive consultatory relationships with RJR R&D technical staff and management. This would also include liaison with other RJR subsidiary R&D departments. Maintains consultatory relationship with corporate management.

External - Regular and extensive in-depth contacts with key governmental, academic, and professional organization representatives. Incumbent is expected to exert leadership influence in applicable professional organizations.

REPORTING, SUPERVISION RECEIVED, SUPERVISION GIVEN AND FREEDOM TO ACT

1. Reports to appropriate managerial staff member.
2. Works independently and in a consultative relationship.
3. Work is reviewed over a relatively long period of time for desired results.
4. Acquires support for and directs the research efforts of a number of high level researchers (normally 3-6).
5. Advises top management on research and development trends and their probable impact on RJR.



LEVEL OF EXPERTISE

The incumbent is known for sustained and outstanding R&D accomplishments and is recognized as being an authority in one or more R&D specialties within the RJR technical community. He/she

1. Applies advanced scientific and engineering theories, principles, concepts and technologies in developing original R&D programs.
2. Is responsible for continuing to maintain a high level of competency in his/her area of expertise and to explore new ways of applying this knowledge to solve R&D problems.
3. Is responsible for maintaining an up-to-date awareness and utilizing emerging technologies and scientific results which may have potential impact on the Company.

LEVEL OF R&D EFFORT

Functions

Technical Leader - Develops and executes R&D efforts to solve complex problems where little or no

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

precedent exists and the use of ingenuity and creativity is required. Provides technical leadership within an R&D activity at the group level. Manages/directs the technical course of major R&D projects within his/her area of expertise.

Planning - Plans critical R&D projects requiring a high degree of creativity and inter- and intradepartmental organization. Establishes technical objectives within area of expertise and selects the technical staff required to accomplish these objectives.

Execution - Directs and participates in R&D studies to generate the research data and results required to meet the technical objectives. Directs and participates in the analysis and interpretation of research data and results.

Communications - Reviews R&D project outcomes and the recommendations of lower-level technical staff. Makes recommendations to R&D group management. Oversees the preparation, presentation and follow-up of major R&D proposals. Contributes to and directs the preparation and presentation of oral and written reports to R&D management.

Consults with R&D management, technical staff personnel and other company functional groups concerning the solution of problems related to his/her area of expertise.

RESPONSIBILITIES

Technical Content - Works closely with project technical staff to ensure that R&D studies produce relevant and high quality technical results.

Schedules - Establishes appropriate project schedules and deadlines.

Budgets - Assists R&D management in the preparation of budgets for R&D projects in his/her area of responsibility.

Evaluations - Either evaluates technical support personnel or supplies input to division management concerning their performance.

EDUCATION & EXPERIENCE

Ph.D. with 10+ years of experience.
M.S./B.S. with 15+ years of experience.
Non-degreed with 20+ years of experience.

HUMAN RELATIONS SKILLS

Must be able to interface with and influence individuals in key positions within R&D and other functional groups within the Company such as manufacturing, engineering, quality assurance, marketing and law.

RELATIONSHIPS

Internal - Maintains a consultative relationship with R&D technical staff and technical management. Participates in inter- and intradepartmental activities where his/her expertise can contribute to the success of R&D programs.

External - As appropriate, establishes and maintains contacts with various associations, universities and governmental agencies, and coordinates with technical and scientific consultants. Participates in applicable professional organization.

REPORTING, SUPERVISION RECEIVED, SUPERVISION GIVEN AND FREEDOM TO ACT

1. Reports to appropriate managerial staff member.
2. Works independently with general management supervision.
3. Work is reviewed over a relatively long period of time for desired results.
4. Is instrumental in acquiring support for and directing the R&D effort of a number of staff personnel (normally 3-6).
5. Advises R&D management concerning research trends and developments in his/her area of expertise.

JOB DESCRIPTION MASTER

LEVEL OF EXPERTISE

The incumbent is known for outstanding R&D accomplishments and is recognized as being highly qualified in an R&D specialty within the RJR technical community. He/she

1. Applies advanced scientific and engineering theories, concepts, and technologies in area of specialty.
2. Is responsible for continuing to maintain a high level of competency in his/her area of expertise.
3. Is responsible for maintaining an up-to-date awareness of and utilizing emerging technologies and scientific results in his/her area of

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specialization which may have potential impact on the Company.

LEVEL OF R&D EFFORT

Functions

Technical Leader - Develops solutions to complex R&D problems where little or no precedent exists and the use of ingenuity and creativity may be required. May develop and/or lead R&D projects at the division level in his/her area of specialization. May direct R&D efforts on a large-scale project or several small projects.

Planning - Plans projects, determines technical objectives, makes recommendations for the selection of project staff and organizes the R&D effort to meet technical objectives.

Execution - Actively participates in the generation of research data and results. Analyzes and interprets research data and results.

Communications - Reports R&D outcomes and makes recommendations to division management. Contributes to and directs the preparation of oral and written reports to R&D management.

RESPONSIBILITIES

Technical Content - Is responsible for the quality of technical results.

Schedule - Is responsible for maintaining project schedules and meeting appropriate deadlines.

Budgets - Assists division management in the preparation of budgets for R&D projects in his/her area of responsibility.

Evaluations - Either evaluates technical support personnel or supplies input to division management concerning their performance.

EDUCATION & EXPERIENCE

Ph.D. with 6+ years of experience.
M.S. with 9+ years of experience.
B.S. with 12+ years of experience.
Non-degreed with 15+ years of experience.

HUMAN RELATIONS SKILLS

Establishes effective relationships with peers, support groups and other reseachers.

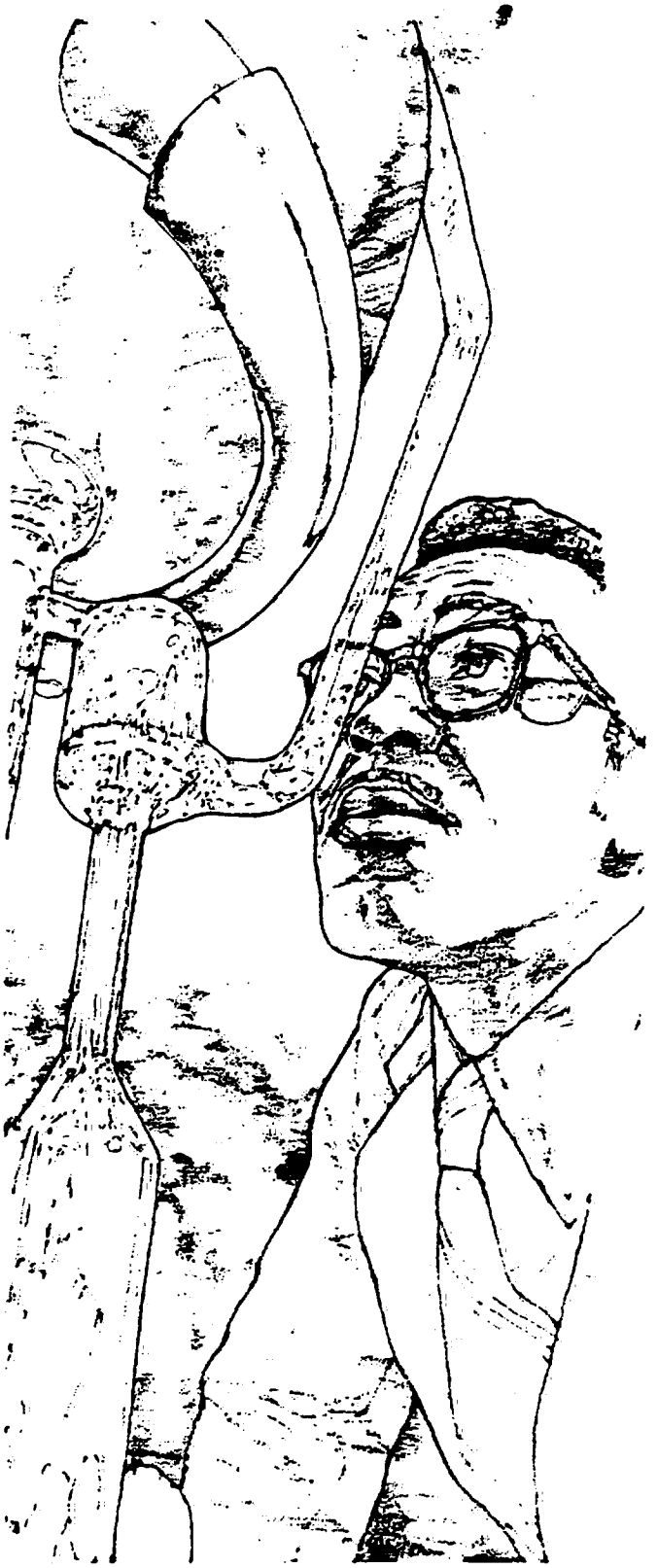
RELATIONSHIPS

Internal - Participates in frequent inter- and intra-departmental collaborations. Maintains regular contacts with technical support groups plus regular contacts with company functional groups such as manufacturing, engineering, quality assurance, marketing and law.

External - As appropriate, forms contacts with various associations, universities and governmental agencies, and coordinates with technical and scientific consultants.

REPORTING, SUPERVISION RECEIVED, SUPERVISION GIVEN AND FREEDOM TO ACT

1. Reports to appropriate managerial staff member.
2. Works under management direction. Normally determines technical objectives for the R&D projects in his/her area of responsibility.
3. May direct the efforts of R&D junior professional and support personnel. Assists R&D management in training and guiding less experienced R&D technical staff. Assists R&D management in technical evaluation of divisional staff.
4. Work is reviewed to determine if desired overall results and objectives have been achieved.



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Appendix D

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APPENDIX D

B&W

R&D ORGANIZATIONAL CHARTS

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

bw-chart.1
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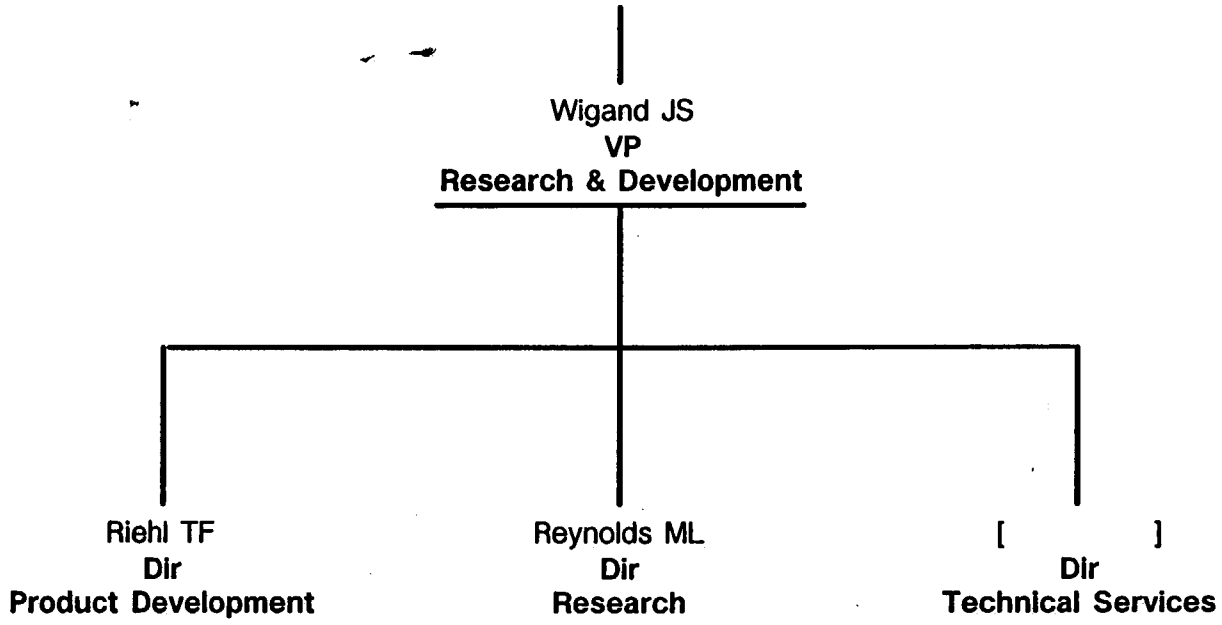

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

bw-chart.2
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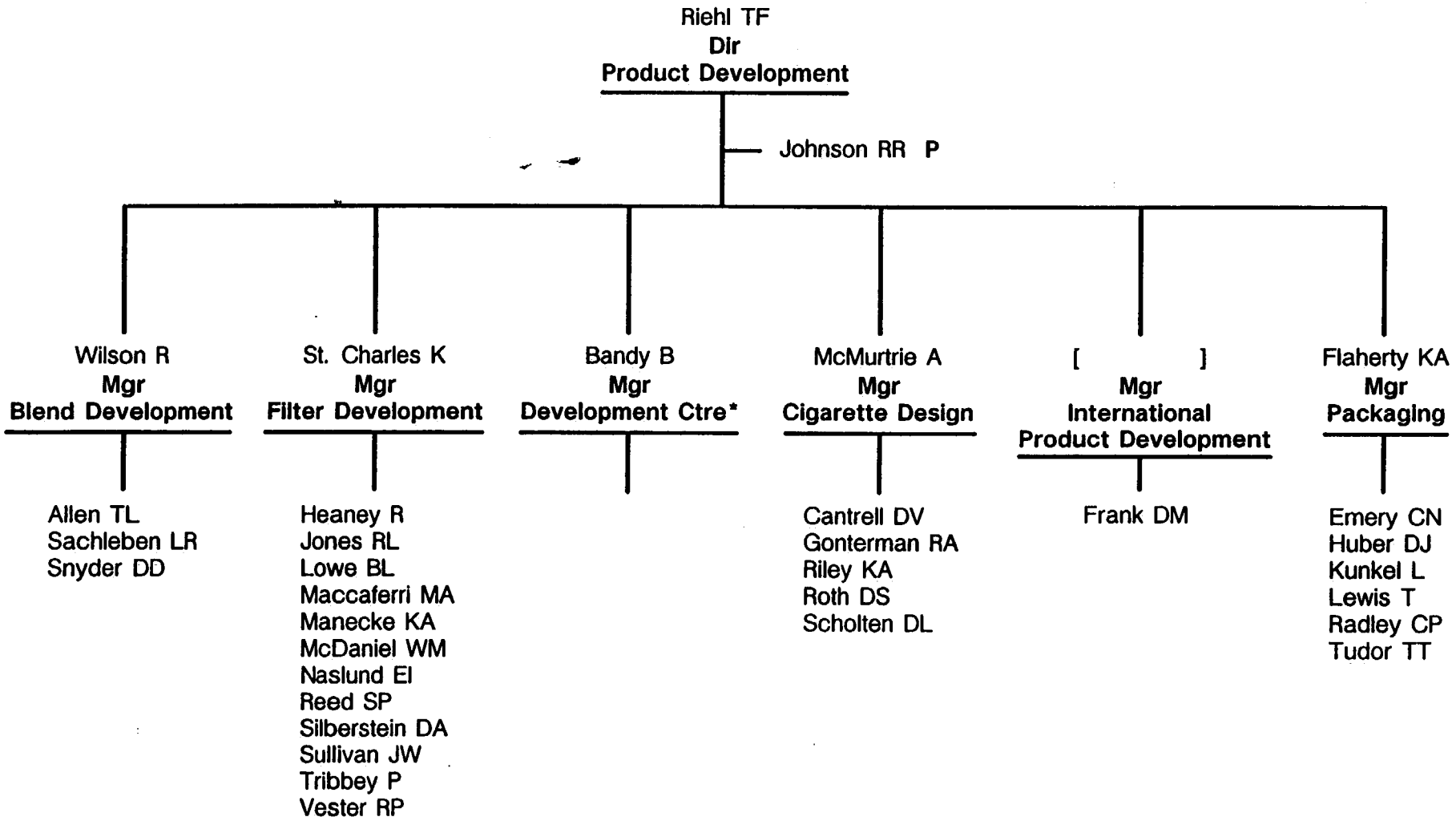

P = Principal Scientist
* Pilot Plant

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

bw-chart.4
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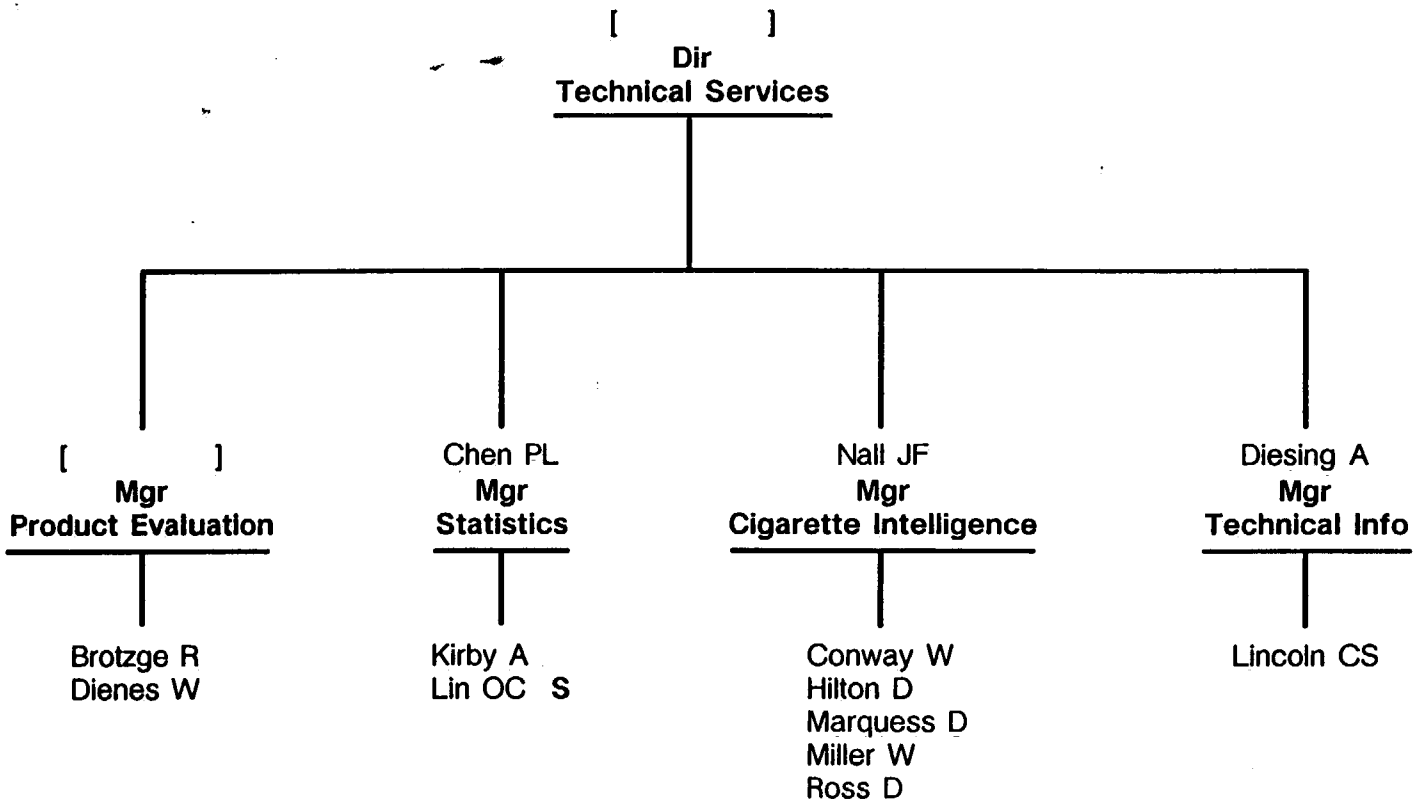

S = Scientist/Statistician

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

bw-chart.4
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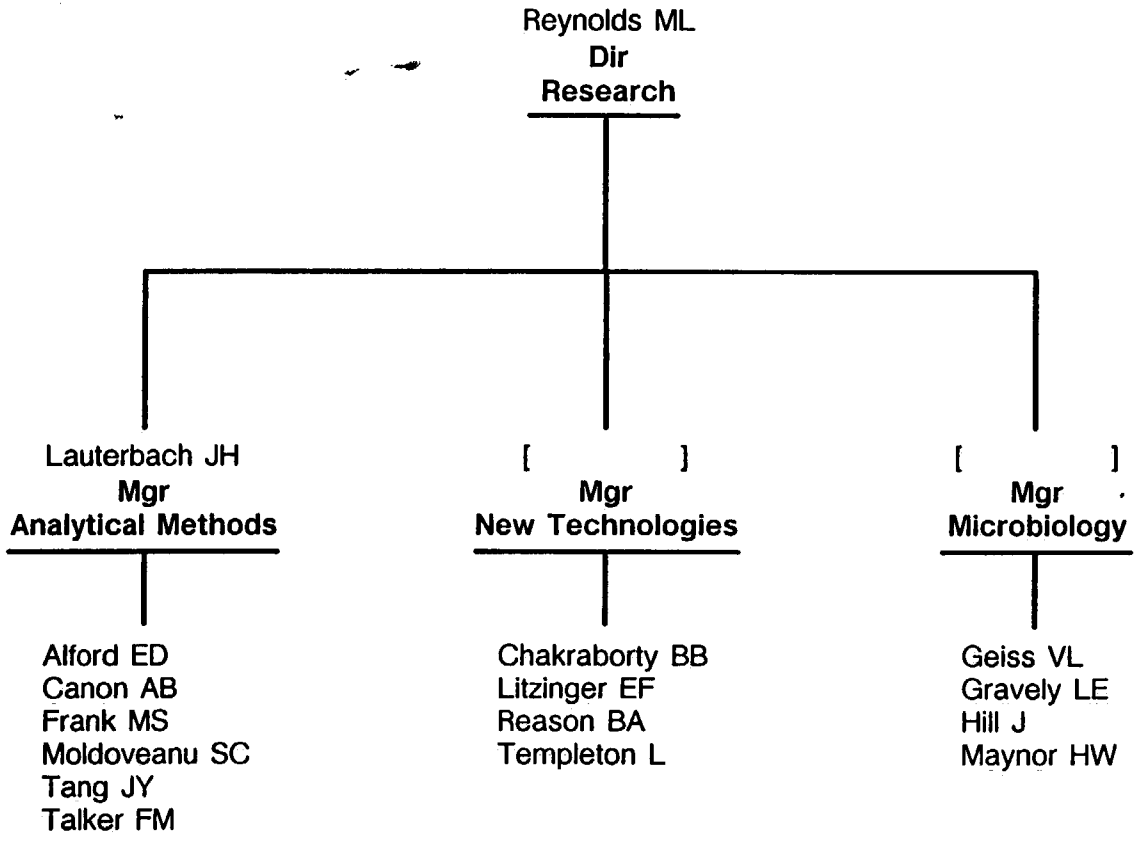

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Appendix E

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

APPENDIX E

JAPAN TOBACCO

CENTRAL RESEARCH DEPARTMENT

ORGANIZATIONAL CHARTS

2021391202

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

JAPAN TOBACCO INC.

Central Research Department

6-2, Umegaoka, Midori-Ku, Yokohama City, Kanagawa Prefaeture, Japan

(045)	(973) 5611	
	1327	(Head of Research)
(973)	3441	(Assistant Head of Research)
	1328	(Head of Administration)
	1329	(Director of Research Planning)

Fax
(973) 6781 (Administration)

Head of Central Research — Masa-o Noguchi (03 (982) 1322)

Asst. Head of Central Research — Taku-Ro Kisaki ((971) 1861)

Department of Research Planning

Director Research Planning	Maeda
Supervisors	Antoh
Supervisors	Kanamaru
Supervisors	Yamada
Scientist	Takasu
Principal Scientist	Ishikuro
Principal Scientist	Matsusaki
Principal Scientist	Uchiyama
Principal Scientist	Ikeda
Scientist	

Administration

Department Head	Nomura
Assistant Head	Ishino
General Affairs	Fukawa
	Mi-u-ra
	Fujima
Accounting Head	Tajima
Chief Accountant	Ariga
Audit	Yamaguchi
Payload Head	Kiyoshi
Head of Procurement	Watanabe
Chief Procurer	Okafuji
Audit	Ishihara
Chief of Goods Control	Hasunuma
Audit	I-to

2021391203

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Maintenance Head	
Head, Mechanical Maintenance	Suzuki
	Kobayaski
	Fujimura
	Kawaguchi

Smoking Science No. 1 Research Dept.

Dept. Supervisor	Ishizu
Special Scientist	Masuo
Principal Scientist	Ishihuro
Scientist	Yamamoto
Technician	Hasu
Technician	Umemura
Technician	Kanaki
Technician	Suzuki, Y.

No. 1 Products Research Department

Dept. Supervisor	Nishikata
Principal Scientist	Kobayashi
Principal Scientist	Muranaga
Principal Scientist	Matsukura
Scientist	Akagi
Technician	Isono
Technician	Hirato
Technician	Iseda
Technician	Churusawa
Technician	Sone
Technician	Toriyi
Technician	Akagi

No. 2 Products Research Department

Dept. Supervisor	Shigematsu
Special Scientist	Yasumatsu
Scientist	Miyano
Scientist	
Scientist	Takase
Technician	Sakayi
Technician	Kitami
Technician	Hayashi
Technician	Mitake
Technician	Suhara
Technician	Inowei
Technician	Hara
Technician	Shigetayi
Technician	Misuta
Technician	Fukuhara

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No. 3 Products Research Department

Dept. Supervisor	Muramatsu
Principal Scientist	Kawahata
Principal Scientist	Tamaoki
Principal Scientist	Yamasaki
Principal Scientist	Chuneta
Scientist	Nidori
Scientist	Takeyi
Technician	
Technician	Ansai
Technician	Takeda
Technician	Toda
Technician	Tanaka

No. 1 Basic Research

Dept. Supervisor	Koiwai
Special Investigator	Takanami
Principal Scientist	Matsusaki
Scinetist	Kuwada
Scientist	Yamamoto
Scientist	Tanabe
Scientist	Imai
Technician	Masuda
Technician	Nibata
Technician	Takabayashi

No. 2 Basic Research Department

Dept. Supervisor	Migami
Special Investigator	Yamasaki
Special Investigator	Maeda, S.
Principal Scientist	Ishigawa
Scientist	Kachuyama
Scientist	
Scientist	Hori
Technician	Uchida
Technician	Uebara
Technician	Aoki
Technician	Hayashi
Technician	Noguchi

No. 3 Basic Research Department

Dept. Supervisor	Kobari
Principal Scientist	Simizu
Principal Scientist	Uchiyama

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Principal Scientist	Yoneyi
Principal Scientist	Kobayashi
Principal Scientist	Nakanishi
Technician	Asatobi
Technician	
Technician	Inonei
Technician	Sasaki
Technician	Ohimawari

No. 4 Basic Research Department

Dept. Supervisor	Machushita
Principal Scientist	
Principal Scientist	Saito
Scientist	Ichise
Scientist	
Technician	Furuseki
Technician	
Technician	Takahashi

No. 5 Basic Research Department

Dept. Supervisor	Fujimori
Special Scientist	Kawano
Principal Scientist	Nakajima
Principal Scientist	Eda
Scientist	Mori
Scientist	Kodama
Scientist	Nisizawaji
Technician	Sakagami
Technician	Matsuki
Technician	Tasaki

No. 6 Basic Research Department

Dept. Supervisor	Matsumoto
Principal Scientist	Inajima
Principal Scientist	Ikeda
Principal Scientist	
Principal Scientist	Suzuki, H.
Scientist	

No. 7 Basic Research Department

Dept. Supervisor	Kishita
Special Scientist	Tachu
Special Scientist	Chiba

2021391206

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Principal Scientist	Kamada
Principal Scientist	Katayama
Scientist	Miyanowaki
Scientist	Inada
Technician	
Technician	Yamaguchi
Technician	Tomari
Technician	Shimasaki
Technician	Takeda, M.

No. 8 Basic Research Department

Dept. Supervisor	Oh-nishi
Principal Scientist	Kameyi
Principal Scientist	Machumoto, T.
Principal Scientist	Okamoto
Scientist	Saito
Technician	Watanabe
Technician	Harada
Technician	Takeda
Technician	Chubushi
Technician	Shimizu, H.
Technician	Fukuhara
Technician	Kurota
Technician	Suzuki, K.

No. 1 Special Project Team

Special Scientist	Matsu-o
Scientist	Yamashita
Technician	Chuchihi

Clinic/Medical

Head of Clinic	Kisaki, T.
Head of Health Care	Ichigawa
Pharmacist	Kuraishi

Biology Experiment Center

(Hatano Exp. Station)

Head of Exp. Station	Kubo, S.
Special Scientist	Kawari
Special Scientist	Higase
Special Scientist	Tachusawa
Supervisor	Miyamura

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Assistant	Susuki, M.
Assistant	Imaju
Assistant	Chuda
Principal Scientist	Saito, A.
Scientist	Kuwata, S.
Scientist	Kodama, H.
Scientist	Imaju, M.
Supervisor, No. 1 Research Section	Tachusawa, H.
Principal Scientist	Kusama, M.
Scientist	Miyakawa, Y.
Technician	Sato
Technician	Konishi
Technician	Kitashima
Supervisor, No. 2 Research Section	Chuda, H.
Principal Scientist	Nishi
Technician	Shimizu, C.
Technician	Taketomi, M.
Technician	Nagasegawa, M.
Pharmacology Research Team	
Principal Scientist	Yuwata
Technician	
Technician	Furukawa

Hirajuka Production Technical Research Center

Head of Production Technical Research Center	Takemoto
Assistant Head (Administration)	Watanabe
Assistant Head (Research)	Kagawa
Assistant Head (Research)	Hata
Assistant Head (Research)	Muramatsu
Special Scientist	Hirose
Audit	Kurosaki
General Affairs	
Chief	
Head of Staff	Kamesaki, S.
Assistant Investigator	Ishimomo
Paylord Head	Kobayashi
Assistant Auditor	Hiasa
Accounting Head	Inuda
Chief of Accounting	Oh-hara
Assistant Investigator	Watanabe
Chief of Procurement	Hirosawa, M.
Assistant Investigator	Umadori
Head of Maintenance	Shimizu, S.
Chief of Operation	Honta, H.
Assistant Investigator	Sakama
Assistant Investigator	Sirai
Assistant Investigator	Sato
Assistant Investigator	Kitabata
Assistant Investigator	Makida
Mech. Maintenance Chief	Miyamura
Assistant Investigator	Ishida

2021391208

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

	Supervisor of No. 1 Research Section	Kono
	Technician	Yoshimoto, K.
	Technician	Tanaka
	Technician	Yoshida, T.
	Supervisor of No. 2 Research Section	Suzuki
	Principal Scientist	Yasuda
	Scientist	Takabashi
	Scientist	Chiujio
	Scientist	Sato, K.
	Technician	Nimura
	Technician	Kusagiri, Y.
	Supervisor of No. 3 Research Section	Akutagawa, Y.
	Principal Scientist	Imano, K.
	Principal Scientist	Daiyachu, N.
	Technician	Ishikawa
	Technician	Nishimura
	Technician	Shimizu, K.
	Supervisor of No. 4 Research Section	Ifuku
	Principal Scientist	Sakamoto
	Principal Scientist	Kataoka
	Principal Scientist	Sugisaki
	Scientist	Shigeta
	Scientist	Tomisawa, S.
	Assistant Investigator	Shiraki, C.
	Technician	Himuki
	Technician	Setoyama
	Technician	Hosoya
	Technician	Kawakachu
	Technician	Minami
	Technician	Noborigami
	Technician	Tomochika
A.	Research Team Leader	Yasuko
	Scientist	Nishida
	Technician	Funitani
	Technician	Yoshifuji
	Technician	Kawada
B.	Research Team Leader	Hirose, I.
	Principal Scientist	Sakawa
	Scientist	Hideno
	Scientist	Okasawa
	Scientist	Tani
C.	Research Team Leader	Nanbu
	Principal Scientist	Nakamura
	Principal Scientist	Ishimaru
	Scientist	Masuno
	Scientist	Fujihara
	Scientist	Kobayashi
	Technician	Kawamura
	Technician	Saito
	Technician	Kawafuku
	Technician	Saito

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Morioka Experimental Station

Head of Experimental Station	Nishinaka, Y.
Investigator	Yon-nichi-shi, T.
Assistant Supervisor (Administration)	Isumi, T.
Assistant Supervisor (Research)	Tanaka, Y.
Assistant Supervisor (Research)	Kawada, C.
Special Scientist	Watanabe, L.
Special Scientist	Suzuki
Special Scientist	Okamura
Supervisor of Maintenance	Nakamura, F.
Administrative Chief	Sato, I.
Accounting Chief	Machumoto, H.
Operation Chief	
Assistant Investigator	Takabashi, M.
Assistant Investigator	Shimizu, S.
Assistant Investigator	Nishigawa, L.
Assistant Investigator	Kogasahara, L.

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APPENDIX F

GOVERNMENT AND SOCIAL INFLUENCES

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Summary of 1988 Legislative Action

- Total Tobacco Legislation (1988)

  Considered: >600 pieces
  >335 local

- Cigarette Tax Increases (1988)

  Considered: 27 states
  Passed: 3 states*

  *Includes record high 25¢ cigarette tax in California Proposition 99

- Cigarette Tax Increases (1987 & 1988)

  Considered: 58 states
  Passed: 15 states

- Statewide Smoking Restrictions (1988)

  Considered: 39 states
  Passed: 6 states

- Smoking Restrictions in Localities (1988)

  Considered: 238 localities
  Passed: 126 localities

- Cigarette Advertising/Promotion Restrictions (1988)

  Considered: 19 states and federal government
  Passed: None*

  Minor restrictions on advertising on public transportation passed in Washington, D.C.

- "Fire-Safe" Cigarette Legislation

  Considered: 4 states (NY, IL, MA, MN)
  Passed: None*

  *Will continue to be a major challenge over the plan period.

- Product Liability Laws

  Considered: 4 states (LA, TX, WI, PA)
  Passed: LA

- California Proposition 65

  Inclusive of ETS and smokeless tobacco

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- Hiring Practice Legislation/Policies

  MA State Law - prohibits hiring of tobacco-users for public safety jobs

- Solid Waste Disposal/Nondegradable Packaging

  Under consideration in various states and localities.

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A Few Words from Congress's Anti-Tobacco Voices

By John Chwat

Atkins

Levine

Moakley

At the start of each Congress certain members of the U.S. House and Senate introduced a full range of anti-tobacco legislation ranging from proposed raises in Federal excise taxes on tobacco products to mandating the manufacture of fire-safe cigarettes. The following is a selected list of some of the key sponsors in the 101st Congress, 1st Session, of legislation designed in some way to have an adverse effect on the domestic tobacco industry.

HOUSE

Chester Atkins (D-Mass.)
H.R. 665, The Adolescent Tobacco Education and Prevention Act

H.R. 665 has three elements: (1) There is an education component paid for through already authorized funds in the Drug-Free Schools and Communities Act of 1986 on the additive and life-threatening aspects of tobacco use; (2) It establishes a national standard by prohibiting the sale of tobacco products to anyone under the age of 18; and (3) It establishes a ban on vending machine sales of tobacco products.

March 28, 1989
Dear Colleague letter

Mel Levine (D-C[illegible]f.)
H.R. 1249, Tobacco Export Reform Act

Our legislation would require that tobacco products sold abroad carry the same warning labels on packaging and advertising, as well as the same restrictions on advertising, as those sold in this country under the Federal Cigarette Labeling and Advertising Act. It would also restrict U.S. government authorities from promoting the reduction or elimination of foreign country restrictions on the advertising, sale, manufacture, promotion or distribution of tobacco products.

It is even more disturbing that the U.S. government has often been an enthusiastic advocate of tobacco promotion abroad. The U.S. trade representative has used the threat of section 301 trade sanctions to force open markets or change marketing practices in Japan, South Korea, and Taiwan in recent years. Trade negotiators have treated advertising restrictions as non-tariff trade barriers; currently, U.S. trade negotiators are pressuring Thailand to lift its ban on cigarette advertising. U.S. government officials also tried to thwart a Hong Kong ban on smokeless tobacco products. And the U.S. Targeted Export Assistance Program and the Cooperator Foreign Market Development Program provide U.S. taxpayer dollars for the purpose of developing foreign markets for U.S. tobacco."

March 2, 1989
Press release

Joe Moakley (D-Mass.)
H.R. 292, Fire Safe Cigarette Act

I, along with Senator Cranston and Senator Heinz, have been actively involved with this issue for the past decade. We sponsored the original Cigarette Safety Act of 1984 which created the Technical Study Group on cigarette and Little Cigar Safety (TSG) to study the technical, economic and commercial feasibility of developing a cigarette with a minimum prosperity to ignite upholstered furniture.

John Chwat is a partner in Chwat/Weigand Associates, a Washington, D.C. consultancy.

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Suction Tapes for Vacuum Transport
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Telefax (07324) 1515
Telex 714834
W.-Germany

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Oberstar

Slattery

Stark

The Final Report of the TSG found "that it is technically feasible and may be commercially feasible to develop cigarettes that will have a significantly reduced propensity to ignite upholstered furniture and mattresses." The key characteristics that lead to a fire safe cigarette are: less porous paper, more expanded tobacco, presence of a filter tip, no citrate ditive, and in some cases a smaller ameter. Various combinations of these modifications significantly reduce the likeliness of a cigarette related fire.

After previewing the final report of the Technical Study Group, Senator Cranston, Senator Heinz, and I introduced the legislation which would direct the National Bureau of Standards to develop a performance test method with one year of enactment of the legislation, and require the CPSC to promulgate a fire safety standard that cigarette manufaturers would then have one year to comply. We strongly believe decisive actions needs to be taken."

February 13, 1989
Dear Colleague letter

James Oberstar (D-Minn.)
H.R. 598, Aircraft Cabin Air Quality Protection Act

The Congress has already enacted, as part of the appropriations process, a two-year ban on smoking on two line flights of two hours or less. nat ban expires in April, 1990. While I supported that provision, I did so only as an interim step toward a long over-due, permanent ban on smoking on board aircraft, in view of the scientifically demonstrated, profound health risks to passengers and crew from passive smoking. There ought to be a prohibition on smoking on all domestic airline flights, whatever the duration of the flight. My bill would accomplish this purpose.

January 19, 1989
Statement by the Congressman

Jim Slattery (D-Kan.)
H.F. 1171, Cigarette Labeling Act

I have introduced H.R. 1127 which would require a new, permanent warning label, in addition to the current four rotating warning labels, on cigarette packages and advertising to read as follows:
SURGEON GENERAL'S WARNING: Nicotine In Cigarettes Is An Addictive Drug.

March 6, 1989
Dear Colleague letter

Pete Stark (D-Calif.)
H.R. 1452, Increase in Federal Cigarette Excise Tax

I am introducing a bill to increase the cigarette excise tax by 25 cents, from the current 16 cents a pack to 41 cents. This action, alone, will stop 1 million teenagers from picking up the deadly habit and will save billions in health care costs in years to come.

The 25 cent increase in the excise tax will generate 14 billion a year.

March 15, 1989
Congressional Record

Mike Synar (D-Okla.)
H.R. 1493, Children's Health Protection Act

(a) Prohibits tobacco advertising that uses human figures of facsimiles, brand name logos or symbols, and pictures (except for a single picture of the product). Limits the size of the tobacco product

Synar

Weiss

Whittaker

displayed in the ad to the actual product size. Permits a neutral white background and black lettering only. Prohibits tobacco product advertising in any location where sports activities occur and from within 500 feet of schools.

(b) Prohibits free samples or discount coupons. Permits sponsorship of athletic, musical, artistic or other event and marketing of non-tobacco products or services under the corporate name of the tobacco product only. Prohibits tobacco manufacturers from paying to have their products used in motion pictures, television, plays, or other form of entertainment. Prohibits the placement of brand name logos or symbols on any toy used by people under the age of 18.

(c) Requires that tobacco product packages be white with black lettering and prohibits the use of

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pictures, brand name logos or symbols, pictures, and human figures or facsimiles on the product package.

March 16, 1989
Statement by the Congressman

Ted Weiss (D-N.Y.)
H.R. 412 Smoking and Health Advertising Act

Specifically, this bill amends the Internal Revenue Code of 1986 to disallow the deduction for advertising or other promotion expenses with respect to the sales of tobacco products unless the taxpayer (the tobacco companies) pays for the specified amount of advertising on the health effects of smoking. All advertisements would be prepared by, or approved by the Secretary of Health and Human Services (HHS) so as to assure their quality.

January 3, 1989
Statement by the Congressman

Bob Whittaker (R-Kans.)
H.R. 1494 Tobacco and Nicotine Health and Safety Act

The Legislation I am introducing today—the Tobacco and Nicotine Health and Safety Act of 1989—would create a new chapter under the Food, Drug, and Cosmetic Act to regulate the manufacture, distribution, sale and promotion of tobacco products. Specifically, this bill would:

- require tobacco manufacturers to fully disclose all chemical additives in tobacco products;
- give the Secretary of HHS the authority to reduce the levels of harmful additives or prohibit the use of those additives altogether;
- prohibit the sale of tobacco products to anyone under eighteen years old;
- prohibit the distribution of free samples or coupons for cigarettes;
- require a new warning label on the addictive nature of tobacco use.

In addition, the new bill specifies that non-tobacco products which contain nicotine are to be categorized as drugs, and are to be regulated by the FDA as such.

March 16, 1989
Press release

Cranston

Hatch

SENATE

Alan Cranston (D-Calif.)
S. 17, Fire Safe Cigarette Act

My bill directs the Consumer Product Safety Commission (CPSC) to seek the advice and expertise of the National Bureau of Standards and other Federal and state agencies engaged in fire safety in developing standards for less fire-prone cigarettes, and to take into account the results of the feasibility study. The bill further stipulates that the Commission shall issue the standards for fire safe cigarettes within one year of the date of enactment. In addition,

In addition, Mr. President my bill states that the standards shall be developed in accordance with the Administrative Procedures Act, provides for judicial review, and clarifies that the standards developed pursuant to this bill shall not preempt any state law that prescribes more stringent standards for fire safe cigarettes.

January 25, 1989
Congressional Record

Orrin Hatch (R-Utah)
S. 655, Public Protection from Passive Smoke Act

This legislation requires every domestic interstate public conveyance to certify to the Surgeon General of the Public Health Service that they will not voluntarily expose the public to passive smoke. This certificate must be displayed to the public, and anyone who violates the certificate may be fined up to $1,000.

Titles II and III of this legislation will also codify our existing public education efforts on cigarette and smokeless tobacco products.

March 17, 1989
Congressional Record

July 15
The Annual Import/Export Issue
European Articles
Regular Features
WATCH FOR IT

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STATELINE

THE TOBACCO INSTITUTE
STATE ACTIVITIES DIVISION

SPECIAL REPORT

December 8, 1988

TRENDS & HIGHLIGHTS OF THE 1988 STATE & LOCAL LEGISLATIVE YEAR

A Special Year-End Report to the
Tobacco Institute Executive Committee

The State Activities Division's field staff and legislative counsel faced nearly 600 pieces of state tobacco legislation and more than 335 local anti-tobacco proposals in 1988. While some of these measures are still pending in state legislatures -- in Michigan, New Jersey, New York and Ohio -- and at the local level, it is clear that anti-tobacco challenges were met by the industry with a high degree of success in 1988. It is also clear that 1989 will be an intense year for the industry in fighting adverse legislation.

Among the highlights of the industry's 1988 legislative year and the forces which will shape 1989:

- The traditional election-year reluctance to raise broad-based taxes focused revenue-minded legislators' attention on tobacco and other "sin taxes." Nonetheless, 1988 produced the lowest number of state cigarette tax increases since 1980. It is unlikely, however, that the industry will achieve this level of success in fighting tobacco taxes in 1989.

- The record-high 25-cent cigarette tax increase, and the "proportionate" tax on other tobacco products adopted in California Proposition 99, may set a new benchmark for tobacco tax proposals, much as the scheduled 8-cent sunset of the Federal excise tax opened a new range for state cigarette tax hikes in 1985.

- Legislation to ban smoking entirely in workplaces and public areas, rather than to restrict it to designated areas, continued to gain consideration in state and local arenas; such bans generally were rejected in all but limited areas, such as state or county office buildings.

- Congressional debates over tobacco advertising, the U.S. Surgeon General's report on "addiction" and increasing concern over youth smoking combined to prompt a growing number of state and local proposals to ban or limit advertising, sampling and sales through vending machines. Such measures were generally unsuccessful at the state level.

- While Congress saw introduction of legislation to set standards or to further investigate the "fire-safe" cigarette issue, state activity was confined to only a handful of states; no state passed legislation mandating that cigarettes be "self-extinguishing." State activity on this issue in 1989 will again be closely tied to action in Congress.

- The exportation of California's "Safe Drinking Water & Toxics Enforcement Act" to a half-dozen states produced no victories for environmentalists, but may have laid the groundwork for future consideration of such measures. Inclusion of environmental tobacco smoke and smokeless tobacco under warning provisions of California Proposition 65, and subsequent legal action regarding cigars and pipe tobacco, may draw anti-tobacco forces' attention to using this means of attacking the industry.

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- Legislation and policies discriminating against smokers in hiring for government employment received increasing media publicity and local legislative consideration after a Massachusetts state law took effect, prohibiting the hiring of tobacco-users for public safety jobs ranging from jail guards to firefighters.

- Solid waste disposal problems have prompted state and local legislation aimed at prohibiting the use of nondegradable packaging materials or imposing taxes on such packaging to fund recycling and disposal programs.

- The Rocky Mountain Governors' Tobacco-Free Challenge put eight state administrations on record in support of punitive tobacco taxes, smoking bans and limits on tobacco product promotional activities.

- This year saw the first statewide anti-tobacco ballot initiatives since 1981. Although two of the three measures on November state ballots were rejected, and two other proposed initiatives never qualified, it is likely that the citizen initiative process will be used more frequently to attack the industry.

- A meeting of national voluntary health associations is to be held in January 1989 to plan state and federal strategy on tobacco issues; the American Cancer Society hopes to export California Proposition 99's punitive tobacco taxes to other states, particularly those states which utilize the citizen initiative.

- The 25th anniversary edition of the U.S. Surgeon General's report on smoking will be released in mid-January 1989, offering a potential blue-print for state and local legislation on the full range of anti-tobacco issues.

These and other pressures are reflected in the industry's record of state and local legislative achievement for 1988, and will set the scene for even greater challenges in 1989.

Taxes

Of the 27 states considering cigarette excises in 1988, increases have been approved by only two legislatures, Iowa and Rhode Island, and by ballot initiative in California. Massachusetts did not alter its tobacco excise but repealed the sales tax exemption previously allowed cigarettes and other tobacco products. Cigarette tax legislation is still pending in four states: Michigan, New Jersey, New York and Ohio.

This year, Rhode Island raised its cigarette tax by 2 cents per pack; Iowa hiked its rate by 3 cents, but provided for a 3-cent sunset in 1989; California voters passed a 25-cent cigarette tax increase. Other cigarette tax proposals ranged from a low half-cent per pack in Pennsylvania to a high of 50-cents per pack in California legislation. Outside California, cigarette tax hikes were proposed through the initiative process in Colorado, where a 20-cent increase failed to qualify for the ballot, and Oregon, where voters rejected a penny-per-pack cigarette tax hike and a penny-per-can increase in the beer tax. Minnesota continues to have the highest cigarette excise in the nation, 38 cents, now followed by California, 35 cents, and Iowa, 34 cents per pack.

New or higher taxes on tobacco products other than cigarettes were considered in 20 states, but passed in only two legislatures, Alaska and Iowa, and in California Proposition 99. OTP tax measures remain pending in Michigan, New Jersey and New York.

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At the local level, an unusually high number of cities and counties raised tobacco taxes in 1988. Alabama counties were driven by the desire to stake out a "piece of the pie" in anticipation of eventual passage of a tax "levelization" measure, repealing local tobacco taxes in exchange for an allocation from an increased state excise; that measure did not pass in 1988, but similar legislation is expected to be considered in 1989. Budget pressures for localities in Illinois, Missouri, and Virginia have led local lawmakers to target cigarette and OTP taxes for quick revenue; a proposal to double the local New Orleans, LA, tobacco tax was defeated; state legislation is pending to authorize New York City to increase its local cigarette tax. The Evanston, IL, City Council, however, was convinced by evidence that the town's high local cigarette tax was driving business to neighboring suburbs and voted to reduce the local excise from 15 to 10 cents per pack.

The motivation for extremely high tobacco tax increases was clearly punitive in a number of states, such as California, but fiscal stress in an election year also drew attention to "sin taxes" in such states as Iowa. Budget pressures are expected to increase for a number of states in 1989, including Louisiana, Massachusetts, New York and North Dakota, while extreme anti-tobacco sentiment may drive punitive tax measures in such states as Minnesota, Oregon and Wisconsin. Altogether, the industry expects cigarette tax legislation to be proposed in 35 to 44 states in 1989, OTP tax measures in 29 to 42 states.

Smoking Restrictions

After a record number of smoking restriction measures were passed in 1987, legislative activity on this issue was generally less intense in 1988. While smoking bills were considered in 39 states this year, only six states passed significant legislation this year. Pennsylvania adopted smoking policy requirements affecting workplaces, restaurants and public places; the other states generally focused on tightening existing smoking laws. Proposals are still pending in New Jersey, New York and Ohio.

The solid rejection by Oregon voters of an initiative to prohibit smoking in virtually all workplaces and places open to the public drew nationwide attention and may help to solidify opposition to such sweeping proposals. The Connecticut legislature came close to passing a bill reinstating smoking cars on commuter train lines after the New York Metropolitan Transportation Authority banned all smoking on the Metro North and Long Island Rail Road lines; the legislation is likely to be reintroduced in 1989. The Chicago Regional Transportation Authority rejected a proposal to ban all smoking on its commuter trains.

After the New York City Council approved a stringent smoking ordinance in late 1987, the city's Commissioner of Health promulgated rules for its implementation. A particularly controversial element of these regulations is a requirement that signs be posted in areas where smoking is allowed reading: "Warning: Smoking and Breathing Second-Hand Smoke is Dangerous to Health."

Major local anti-smoking activity is no longer confined to the traditional states of California, Colorado and Massachusetts; numerous cities and counties in Illinois, Maryland, New York and Texas are considering workplace and public smoking measures. More than 100 localities have adopted smoking ordinances thus far in 1988; these measures range from voluntary policies in Montrose, CO, and Waynesboro, VA, to tough workplace restrictions in San Diego County, CA, and New Orleans, LA. A growing number of city and county governments in southeastern states, such as Georgia, North Carolina, South Carolina and Tennessee, have considered restrictions on smoking in publicly-owned buildings.

Local restriction ordinances have been preempted by a Pennsylvania law enacted this year; Florida and Oklahoma have previously preempted local regulation of public smoking. Workplace smoking restrictions were repealed in Aurora, CO, and similar effort is underway in Brownsville, TX.

In 1989, the industry is preparing to fight smoking restriction bills in 42 to 45 state legislatures; the number of local anti-smoking proposals is expected to continue to grow.

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Sampling, Advertising & Sales Restrictions

No state enacted a ban on tobacco product advertising or sampling in 1988, although such proposals were considered in 18 legislatures. Two states, California and Louisiana, prohibited sampling to minors. Legislation to ban or restrict sales through vending machines was considered in 11 states; Alaska and Wisconsin adopted restrictions on the location of tobacco vending machines.

Local proposals to limit the sale or promotion of tobacco products received a boost from the U.S. Surgeon General's report issued in mid-year, which included a foreword urging such action, and adoption of a National Association of Counties resolution calling for consideration of such measures. Three major cities, San Francisco, CA, Cincinnati, OH, and Austin, TX, banned tobacco product sampling this year; Lake City, FL, prohibited sampling near schools and centers of youth activities.

Limits on placement of tobacco vending machines were adopted in four cities and counties. Only one locality acted to restrict advertising of tobacco products: the Washington, DC, Metropolitan Area Transportation Authority rejected a total ban on tobacco advertising in the subway system, but voted to limit it to no more than 30 percent of total advertising revenue.

Passage of a new Canadian law with severe restrictions on tobacco advertising and promotion, including limits on brand-name sponsorship of music or sporting events, could have an impact on state legislative consideration of these issues, particularly in the northern tier of states. The Utah Department of Health is drafting 1989 legislation to expand existing state laws on sampling and sales as its contribution to the Rocky Mountain Governors' Tobacco-Free Challenge. The industry can expect introduction of sampling, advertising or sales restriction measures in 21 to 36 states in 1989.

"Fire-Safe" Cigarette

Despite the late-1987 efforts of anti-tobacco activists who announced introduction of "fire-safe" cigarette legislation even before the recommendations of the federal Interagency Committee on Cigarette and Little Cigar Fire Safety were sent to Congress, such measures were introduced in only five states in 1988. Bills in California, Illinois and Massachusetts died without serious consideration; New York legislation is pending, but is not expected to move in the remainder of this session.

In Minnesota, however, a requirement that cigarettes meet unspecified "fire safety" standards was passed by the State Senate; the bill was never reported from conference committee. The legislature did adopt, as part of the higher education appropriations bill, language directing the University of Minnesota to request funding for a study of the "fire-safe" issue in its 1989 budget request.

State legislatures are expected to continue to watch Congressional action on this issue closely; bills with "fire-safe" cigarette requirements are likely to be introduced in eight to 14 states in the upcoming year.

Other Major Tobacco Issues

Regulations implementing the California Safe Drinking Water and Toxics Enforcement Act, a citizen initiative adopted by state voters in 1986 as Proposition 65, now include environmental tobacco smoke and smokeless tobacco products under exposure warning requirements; these regulations take effect in April 1989. The cigar and pipe tobacco industries have agreed to place "warnings" on their products in 1989 in compliance with the Act.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

State legislation mimicing Proposition 65 appeared in seven states this year; no state bill was given serious consideration, but environmentalists and others are likely to continue to export this sweeping approach to regulation of toxic and hazardous substances.

As an outgrowth of consideration of this issue, legislation was introduced in Louisiana to create "a cause of action against the manufacturer of a tobacco product...for the recovery of expenses incurred by the state in providing medical treatment for lung cancer for any person who contracted that cancer as a result of use of the tobacco product." This measure was reported from policy committee but was defeated on the House floor. Similar cigarette manufacturer liability language was proposed in Wisconsin this year; it, too, was defeated.

Such proposals to create special liability provisions for the tobacco industry have also been introduced in previous years in Illinois and Rhode Island; the industry may anticipate this legislation to be discussed in 1989 in other states where anti-tobacco sentiment is high, including Iowa, Massachusetts and Minnesota.

State and local concern over solid waste disposal problems has prompted a variety of proposed legislation at both levels of government, ranging from bans on specific packaging materials, such as fast-food "clamshells" or plastic bags (enacted recently in Berkeley, CA, and Suffolk County, NY) to bans on all nonrecyclable or nondegradable packaging materials, as well as proposals to levy taxes on manufacturers of "litter-producing" items or to impose per-product or per-container taxes to finance disposal and recycling programs.

Packaging tax or restriction legislation of potential concern to the industry was introduced in ten states in 1988; only one measure was enacted. A comprehensive Florida solid waste law includes a provision imposing a one-cent "advance disposal fee" on packaging in 1992 if certain recycling goals are not met; the tax would double in 1995 if that goal is still unmet.

The solid waste issue is the subject of task force studies in a number of states and by the National Association of Counties. The industry may be required to address packaging tax and restriction legislation in a dozen or more states in 1989.

* * *

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STATELINE

SPECIAL REPORT

THE TOBACCO INSTITUTE
STATE ACTIVITIES DIVISION

April 4, 1989

1989

STATE TOXIC & HAZARDOUS SUBSTANCE LEGISLATION

This is an update to the March 8, 1989 edition of the StateLine Special Report on 1989 State Toxics and Hazardous Substance Legislation.

Background

The passage of the broadly-written California Proposition 65 in November 1986 widened the traditional arena for regulation of so-called "hazardous substances" to include such commonly-used consumer products as food, cosmetics, alcoholic beverages and tobacco products.

Since the enactment of Proposition 65, several states have introduced similar types of legislation and initiatives and several others have requested information and copies of the law from environmental organizations. In 1988, copycat bills were proposed in Hawaii, Illinois, Massachusetts, Michigan, Missouri, New York and Tennessee. However, none of these measures were considered and all died with the adjournment of the 1988 legislatures. A mini-version of the law was proposed as an initiative in Colorado, but was later withdrawn.

The industry must anticipate introduction in other states of legislation, initiatives and regulatory actions similar or identical to California's Proposition 65 and its reliance upon a "scientific advisory panel" and state agencies to determine "lists" of chemicals, chemical mixtures and levels of exposure constituting a hazardous or toxic substance. Such "listing" authority was proposed in Arizona legislation in 1988 and in a ballot initiative in Washington state in the November elections. The Arizona proposal died in committee; however, the ballot initiative was approved by Washington state voters.

Update on California Proposition 65

Emergency regulations for the chemicals included on the first "Governor's list" include requirements for signs to be posted stating: "Warning: This Area Contains a Chemical Known to the State of California to Cause Cancer." Warnings are required to be posted where the public or employees are exposed to such substances in the environment.

On January 29, 1988, the Scientific Advisory Panel placed tobacco smoke and smokeless tobacco products on the second "Governor's list" of "known carcinogens," requiring that public warnings be provided by businesses for exposure to these substances effective April 1, 1989.

In preparation for the April 1 warning requirement, the California Hotel and Motel Association and the California Restaurant Association distributed signs to their members reading: "Warning: This Facility Permits Smoking and Tobacco Smoke is Known to the State of California to Cause Cancer." The California Chamber of Commerce will be distributing information and generic warning signs to its membership on April 10.

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The American Lung Association (ALA) of Los Angeles County held a press conference on March 30 and is distributing information packets to businesses on the Proposition 65 warning requirements for tobacco smoke. The ALA is recommending the following text to comply with the warning requirement: "Warning: This Facility Permits Smoking in Designated Areas. Tobacco Smoke is Known to the State of California to Cause Cancer." The ALA's packet also contains information on where to file complaints and grievances.

The Scientific Advisory Panel's Subpanel on Reproductive Toxicity included environmental tobacco smoke among substances it intends to consider listing as a reproductive toxicant at the Subpanel's next meeting.

1989 State Proposals

California Senator Quentin Kopp introduced legislation (S65) that would include state government agencies under Proposition 65's provisions. Similar legislation introduced in 1988 was vetoed by the Governor. A hearing is scheduled for April 17 in the Senate Toxics Committee. Another measure, A42, by Assemblyman Bill Jones, would revise Proposition 65's exposure exemption for reproductive toxins and revise the definition of "significant amount" by establishing a more scientifically-based safety factor. On March 28, the bill failed in the Environmental Safety and Toxic Materials Committee by a vote of 6-4; however, a motion for reconsideration was granted. A bill introduced by Assemblyman Burt Margolin, A1469, would require the state Occupational Safety and Health Standards Board to revise the state Code of Regulations regulating carcinogens in the workplace to include all carcinogens on the Proposition 65 list. A1469 is pending in the Assembly Labor and Employment Committee.

Florida Senator Javier Souto introduced a bill, S384, that would require the Department of Environmental Regulation (DER) to compile a list of substances that are deemed toxic or otherwise hazardous to humans and which pose a serious threat to public health or the environment. Beginning October 1990, any person who manufactures, imports, transports or distributes at wholesale any listed substance would be required to register with the DER and maintain a permanent record of all sales of the listed substances. S384 has been referred to the Senate Natural Resources and Conservation Committee. Its companion, H1169, introduced by Representative Tim Ireland, has been referred to the House Environmental Regulations Committee. Both bills have second referrals to their respective Appropriations Committees.

Hawaii House Speaker Dan Kihano introduced a bill, H52, the "Public Environmental Health and Information Act of 1989." The bill would mandate the Department of Health to create an official list of chemicals known to cause cancer, damage to the immune system or reproductive harm. The bill would also mandate the Health Department to create a public information system on the contamination of drinking water sources and to establish an advisory committee to assist in its implementation. H52 was reported favorably by the Health Committee with amendments on February 15. It was referred to the Planning, Energy and Environmental Protection (PEEP) Committee where a hearing was held on February 23. After hearing testimony, the committee chairman announced that he would hold the bill for further study. H52 was not reported by the March 3 committee deadline for action and is therefore dead for 1989.

S144, by Senator Gerald Hagino, would establish a Department of Environmental Protection. The Health Department would transfer its duties relating to environmental matters to the new Environmental Protection Department. S144 was reported favorably with amendments by the Agriculture Committee on February 15. It was referred to the Ways and Means Committee. The bill was not reported by the committee deadline for action and is therefore dead for 1989.

Illinois Senator Howard Brookens and Representatives Ellis Levin and Peg Breslin introduced the "Food Toxics Disclosure Act." (S174, H626), on March 14. The bills are modeled after Proposition 65 but are limited to foods and food packaging. The legislation would require the Department of Public Health to publish a list of chemicals known to cause cancer or reproductive toxicity and to appoint a Food Toxics Disclosure Advisory Committee. The bills would require businesses to provide warnings before exposure to chemicals in food and food

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packaging known to cause cancer or reproductive toxicity. Warnings could be provided by product or packaging labels, shelf labels, menus or signs, depending on what is feasible and practical. The legislation provides for civil penalties of up to $2,500 per day per violation. H626 has been referred to the House Consumer Protection Committee. S174 has not yet been given a committee assignment.

Massachusetts Rep. Larry Alexander has reintroduced his 1988 Proposition 65 legislation. The bill, H5109, will be heard in the Joint Natural Resources and Agriculture Committee on April 18. The measure would require the Public Health Commissioner to publish a list of those chemicals identified by the Public Health Department to be carcinogens or reproductive toxins. Also, this list would have to contain chemicals that "are required by state or federal law to have been tested for the potential to cause cancer or reproductive toxicity but have not been adequately tested." The bill would prohibit an intentional exposure of any individual to a significant amount of a listed carcinogen or reproductive toxicant without first giving clear and reasonable warning. Private citizens would be allowed to sue to enforce the law after 60-day notice to law enforcement authorities. The bill would require that warnings be "prominently displayed so as to be seen by affected consumers," apparently ruling out an 800-number system as an adequate warning. In addition, it would provide for civil penalties for violations of up to $25,000 per day per violation.

On March 30, the Grocery Manufacturers of America held a coalition meeting in Boston of food and drug groups on H5109. Representatives of the Grocery Manufacturers and the Massachusetts Food and Restaurant Associations discussed the general legislative outlook and strategy for the April 18 hearing. The Associated Industries of Massachusetts is working to coordinate witnesses and testimony in conjunction with the food and drug coalition.

In a related matter, the State Public Interest Research Group (MassPIRG) has reintroduced its "comprehensive toxics use reduction" legislation, H1929, for consideration in 1989. (In November 1988, the state House of Representatives passed the legislation but the Senate did not consider the bill before adjournment.) As written, the bill does not impact the industry; however, if it fails to pass the legislature in 1989, MassPIRG may pursue a ballot initiative in 1990 containing the provisions of both Alexander's bill and toxics use reduction. The MassPIRG bill currently has more than 100 co-sponsors.

A coalition led by the Associated Industries of Massachusetts (AIM) has introduced an alternative measure to the PIRG bill based on hazardous waste minimization. The bill, H3851, the "Hazardous Waste Elimination and Management System Act," has 59 co-sponsors. The major sponsors are Reps. Robert Havern and and Edward Kirby. The AIM coalition has appointed a negotiating team to meet with MassPIRG representatives to discuss the business community's alternative. The Dukakis Administration is expected to be active in pushing for a legislative compromise between the two groups. A hearing was held on H3851 and H1929 on March 7 in the Joint Natural Resources Committee. Testimony was presented by business and environmental groups. No action was taken by the Committee and no further action is expected on these bills until the on-going negotiations between AIM and MassPIRG on a compromise bill are completed in April.

New York Assemblyman Neil Kelleher has reintroduced a Proposition 65-type measure, A2273, that would require the Commissioner of Environmental Conservation to establish a list of chemicals known to the state to cause cancer or reproductive toxicity. Businesses would be required to give "clear and reasonable" warning before exposure to listed chemicals. The measure has been referred to the Assembly Environmental Conservation Committee. In a related matter, Senator Caesar Trunzo reintroduced the "Safe Drinking Water Act," modeled after the Proposition 65 water discharge prohibitions. The bill, S4109, would require the Commissioner of Health to promulgate a list of substances known to cause cancer or reproductive toxicity in humans. Businesses would be prohibited from discharging or releasing any listed substance into any source of drinking water. Assemblyman Lewis Yevoli introduced its companion in the Assembly, A6519. S4109 and A6519 have been referred to their respective Environmental Conservation Committees.

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Other State Toxics Activity

An initiative was filed in Colorado in March of 1988 to place a "Clean Air/Environment" constitutional amendment on the ballot. As filed, this measure would have required the Governor to publish a list of "known hazardous chemicals" as identified by any state agency or by any administrative or judicial proceedings to be hazardous to the health or welfare of any person or to the environment. The petition was later withdrawn due to time constraints. The initiative's proponents, Coloradans for Clean Air, Water and Land, decided to postpone the initiative filing process until 1989 to prepare it for certification for the 1990 ballot. A new initiative has not yet been filed.

Oregon is a traditionally environmentalist state and an obvious site for import of California's Proposition 65. In 1987, the Senate Majority Leader introduced a toxics bill, but it did not move. Since Oregon permits the direct initiative, the possibility also exists for an initiative to be filed on this issue.

H2334, a toxics use reduction measure backed by the Oregon Public Interest Research Group, was the subject of a hearing March 1 before the House Environment and Energy Committee. The bill would authorize the state to ban certain chemicals and products and would impose a tax on the first point of sale or use of other toxics brought into or produced in the state. The legislation is being monitored closely for any developments that could impact the industry. The measure is still pending in the Environment and Energy Committee.

Indoor air quality legislation backed by the Oregon Lung Association and the Department of Environmental Quality was introduced by the House Environment and Energy Committee. The bill, H3244, would prohibit smoking in all public areas and office workplaces and would raise the cigarette tax by one cent to implement indoor air pollution programs. The measure would also authorize the Oregon Health Division to establish indoor air quality standards for "significant indoor air pollutants," including particulate matter, aldehydes, radon, carbon monoxide, carbon dioxide, ozone and water vapor. An earlier draft of the bill would have imposed a "hazardous substance surcharge" instead of the cigarette excise. A hearing was held on April 3 in the House Environment and Energy Committee. It is still pending in committee.

Tobacco Litigation

Certain affected industries in California had implementation plans prepared for Proposition 65 and reacted immediately to the emergency regulations issued in February 1988. The Grocery Manufacturers of America (GMA) instituted and advertised a telephone "hot-line" for consumers who wish to know what listed chemicals might be contained in common food products. Cigar manufacturers voluntarily chose to advertise a "warning" and to distribute signs to its retailers as part of the general implementation effort. However, the Environmental Defense Fund (EDF) and other environmental groups strongly criticized the use of the "hotline" (or 800 number), charging that it is no substitute for "genuine" warnings to consumers, and that relying on it gives no protection against liability under Proposition 65.

In response to a 60-day notice filed August 2, 1988 by EDF, California Attorney General John Van de Camp filed suit September 30 in the San Francisco Superior Court against manufacturers and retailers of cigars, pipe tobacco and roll-your-own tobacco for failing to provide adequate health warnings under Proposition 65. The state Attorney General asked the court to enjoin all future violations and to impose a civil penalty of up to $2,500 per day per violation. Responding to the lawsuit, Southern California's largest supermarket chain removed all cigars and pipe tobacco from its shelves. Two other chains warned tobacco companies that they would take similar action if warnings were not added to cigars and loose leaf tobacco products.

In an effort to avoid lengthy and costly litigation, producers of cigars and loose leaf tobacco products settled the lawsuit October 18 by agreeing to label individual packages: "Warning: This Product Contains/Produces Chemicals Known To The State of California To Cause Cancer And

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Birth Defects Or Other Reproductive Harm." These products must be labeled beginning 150 days from settlement. In the interim, the manufacturers must notify retailers and distributors in California offering to provide warning shelf signs and posters, and to run notices in California newspapers. The settlement also provides that the manufacturers will not rely on any toll-free information service for Proposition 65 compliance. Under the settlement, no fines will be imposed against the tobacco manufacturers and current warning signs will satisfy Proposition 65 requirements in the 150-day period before warnings are required on packages. The suit against the retailers is still pending.

Other Litigation

The Pennsylvania Plate and Glass (PPG) Industries has agreed to pay settlement costs of $75,000 in response to a suit filed against the company by the Solano County District Attorney. The suit charged PPG Industries with failure to adequately warn customers of potential risks of chemicals used in their products and alleged that the warning posters provided to stores by the manufacturer were not properly positioned. The Solano County District Attorney stated that it is the responsibility of the manufacturer to instruct the retailer how to warn its customers.

The Chemical Specialties Manufacturers Association (CSMA) filed a lawsuit March 2, 1989, challenging requirements under Proposition 65 and Proposition 105 (the so-called "right-to-know" initiative passed in November 1988) that manufacturers place warnings on products. The CSMA Board of Directors authorized the lawsuit under the warning requirements of Proposition 65, claiming that they are preempted by several federal statutes, including FIFRA and OSHA. CSMA is also challenging Proposition 105 based on state law limiting each ballot initiative to one subject.

On December 30, 1988, a California Superior Court rejected the Attorney General's motion to dismiss a suit over whether the 800 telephone system satisfies Proposition 65's clear and reasonable warning requirement. The Ingredient Communication Council (ICC), a manufacturers coalition, filed suit in September in defense of the toll-free system. The state argued that the ICC's suit should be dismissed since the adequacy of the toll free number would be addressed in the grocery chain/tobacco suit. The court found that the Attorney General's enforcement suit against the grocery chains focused primarily on the labeling of tobacco products while the ICC's suit deals specifically with the adequacy of the toll-free warning system.

Solano County Deputy District Attorney Pollock filed suit December 28 against the California Building Industry Association to enforce the warning provisions of Proposition 65. The suit alleges that the Proposition 65 warning signs posted at a residential development in the county, as well as information listed in a pamphlet published by the Association, are insufficient under the law since neither the warning sign nor the pamphlet designates which substance is being warned for or where the "affected area" is. The complaint requests that a warning be substance and site specific. The suit also proceeds under the Unfair and Unlawful Business Practice Act claiming that the defendants knowingly and intentionally distributed warnings and pamphlets containing misleading, false and incorrect information. The suit seeks civil penalties and injunctive relief.

In December 1988, the Chemical Manufacturers Association and the Chemical Industry Council of California filed suit against the California Health and Welfare Agency to force a decision on the preemption of the OSHA federal workplace warnings over those required under Proposition 65. The case is pending in federal district court in Sacramento. In response to the CMA suit, the state Attorney General argued that the suit is inappropriate since the Proposition 65 requirements could be incorporated into its state OSHA plan with the reactivation of CAL-OSHA. CMA is filing a motion for summary judgment.

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A lawsuit challenging the constitutionality of Proposition 65 as it applies to food products has been filed in the U.S. District Court in San Francisco by the Committee for Uniform Regulation and Labeling (CURL). The state filed a motion to dismiss the CURL suit for lack of proper venue, but the motion was denied by the court in October 1988. No trial date has been set.

In a related matter, environmental and labor groups filed suit May 31, 1988 against the California Health and Welfare Agency for allegedly delaying action against suspected toxic substances in food, drugs and cosmetics. The state's 14-month schedule for evaluating food, drugs and cosmetics began July 1 and is based on the Scientific Advisory Panel's recommendation. Trade associations representing the food, drug and medical device and cosmetic industries have intervened. There have been no developments since the motions for intervention were granted.

In addition, the AFL-CIO and environmental groups filed suit June 22, 1988 against the Governor to compel the designation of the Environmental Protection Agency as an "authoritative body" and to require the Scientific Advisory Panel to identify other organizations that should be so designated. GMA and the Environmental Working Group have intervened.

Other Developments

The White House Domestic Policy Council met July 27, 1988 to consider whether the federal government should nullify the authority of California's Proposition 65 to require consumer warnings on food products. The food industry urged the President to issue an Executive Order preempting the state law on the basis that it conflicts with the "federal regulatory purpose" or orderly interstate commerce. At the meeting, the Domestic Policy Council directed its staff to study the state law "to see if it creates the kind of conflicts that might warrant a federal preemption." In December, the Council's staff reported that Proposition 65 does not cause an economic burden significant enough to warrant a federal preemption.

In January 1989, former U.S. Health and Human Services Secretary Otis Bowen and Food and Drug Administration Commissioner Frank Young sent a regulatory proposal providing for an FDA preemption to the Office of Management and Budget for review. The proposal is still pending OMB review.

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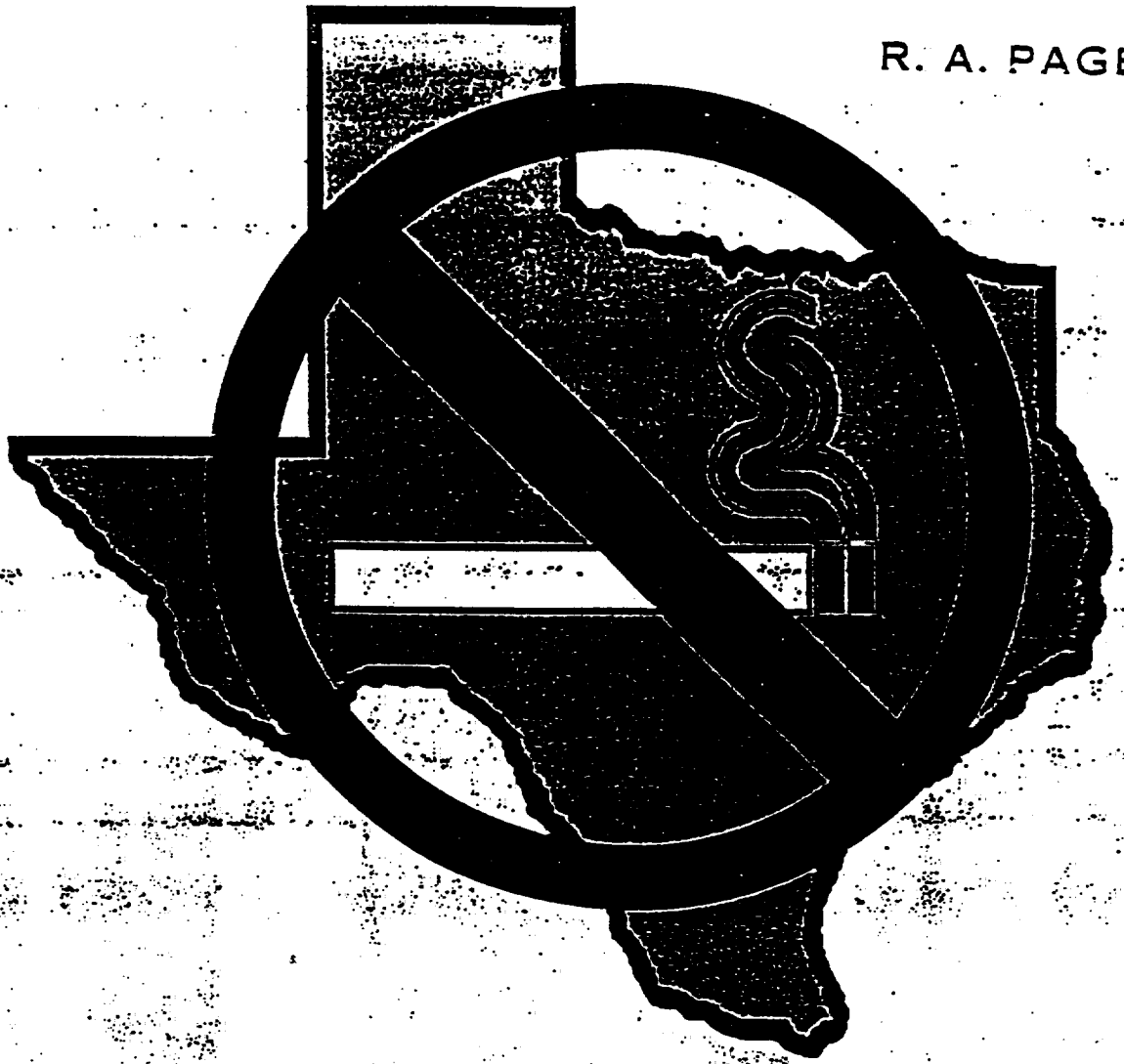
NONSMOKING ORDINANCE GUIDE

JUN 7 1989

R. A. PAGES



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Texas Department of Health, Office of Smoking and Health and American Lung Association of Texas

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0088

The purpose of this booklet is to guide communities in the development of local ordinances designed to limit smoking in public places. The booklet provides suggested methods for accomplishing the community's objective, from organizing a Steering Committee to conducting a media campaign. Community organizers who contributed information for this guide have worked in both rural and urban areas to successfully establish nonsmoking ordinances. This booklet is intended to serve only as a guide, with information and suggestions that can be tailored to reflect the attitudes and desires of your particular community.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

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TEXAS CANCER PLAN

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SECTION I.
GETTING ORGANIZED

In many communities one person may initiate efforts to establish an ordinance. That person may be a member of the medical profession, a representative of a service organization, or a concerned citizen who has been adversely affected by smoking. In any case, success will depend on the combined efforts of a diverse group of individuals. This section contains suggestions for organizing a Steering Committee to lead community efforts, and a sample first meeting agenda. We suggest that you familiarize yourself with the contents of this booklet before beginning any Committee activities.

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Keys To Successful Organization

1. Establish a Steering Committee composed of key individuals and organizations representing many areas of support such as health service representatives, nonsmoking advocates, medical professionals, voluntary health agencies (i.e., American Heart Association, American Cancer Society, American Lung Association), local state and county health officers, local business persons, politicians, attorneys, Chamber of Commerce and P.T.A. representatives, public relations experts, and educators.

2. Select a respected member of the group to serve as coordinator. This person will a) serve as spokesperson for the Committee, b) establish meeting agendas, c) conduct meetings, d) see that accurate records are kept of the Committee's activities. (These duties may be delegated to other members of the Committee if the coordinator has limited time.)

3. Establish a clear objective for the community. Determine the specific result the Committee is seeking. Example: To protect the public health, comfort and environment by limiting smoking to designated areas only in public places, at public meetings and at worksites.

4. Poll the City Council to determine support for the ordinance. This can be done either in person or by letter. State the Committee's objective clearly and ask for a response. If at this point the Committee determines that the City Council is in complete agreement, the ordinance can be drafted, approved, and implemented. (See Section VI: Implementation.) This step will also identify those persons who will oppose the ordinance and may need additional justification.

5. Contact a Council member or the City Secretary to determine protocol for introducing the ordinance. Steps 4 and 5 may be done in either order you choose.

6. Prepare a budget for necessary expenditures (copying, postage, phone, office supplies) and pinpoint sources of revenues through fundraising, donations or dues.

7. Assign specific tasks for each Committee member aimed at achieving the Committee's objective. See that each member has a function within the Committee and understands that function. Allow adequate time at each meeting for members to report on their progress.

8. Know the facts about smoking: prevalence, dangers to both smokers and nonsmokers, health costs in lives and dollars, and legal issues. (See Section IX: "Facts" in this booklet or contact one of the resources listed in Section X.) Anticipate arguments from the opposition, (See Section IX) and prepare Committee's response to those arguments.

9. Build local support as you progress. Identify credible spokespersons, especially those who will testify before the Council. (See Section V.) Prepare an article for your local newspapers including a phone number and/or address to contact for more information. Response to this article will be valuable in identifying both supporters and opponents. (For more detailed assistance see Section III.) Contact the supporters you have identified and solicit their help in building community support. (See Section IV.)

10. Become familiar with the operations of your City Council. Members of the Steering Committee should attend City Council meetings prior to the introduction of the ordinance. This is valuable in learning how the meetings are conducted and what to expect. (See Section II.)

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The following is a sample agenda for the first Committee meeting. With so much to cover, the newly elected Coordinator should strive to keep the meeting focused on the agenda items. Conversation may drift to issues such as other indoor pollutants or statewide ordinances. The group's attention should be refocused to specific items related to smoking in your community. Do, however, allow time for individual contributions related to the local issues.

Sample First Meeting Agenda

I. Selection of a Steering Committee coordinator/spokesperson

II. Discussion of Issues and Facts

A. Reasons for an ordinance

1. Hazards of passive smoking
2. Lack of adequate current regulations
3. Prevalence (nonsmokers outnumber smokers)
4. Economic costs of smoking

B. Anticipated arguments against an ordinance

1. Invasion of rights
2. Impossible to enforce
3. Hurts business
4. Expensive to comply
5. Dangers of passive smoking aren't conclusive

Refer to Section IX for counters to these arguments.

III. Development of an Ordinance

A. Determine what the Committee wants to accomplish. Sample ordinance (Section VII) may be used as a starting point.
B. Edit the sample ordinance as necessary so that the Committee's objective is met.
C. Determine how the ordinance will be enforced (See Section VI).

IV. Assignment of Committee tasks to be completed before next meeting.

A. Develop a list of names and addresses of those persons who might support the ordinance.
B. Develop fact sheets on what the ordinance will do and why it is important.
C. Ask an attorney to review the ordinance for loopholes.
D. Assign a subcommittee to contact local media, and develop articles/programs for newspapers, radio and TV stations.
E. Ask any Council members known to support an ordinance to review the draft, and provide feedback.

V. Set next meeting date.

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Agendas for subsequent meetings might include:

1) Reporting on tasks assigned at previous meetings.

2) Identifying stumbling blocks to establishing an ordinance, and developing strategies for overcoming them.

   For example, who opposes the ordinance? To what degree do they oppose it? Some opposition may be limited to only certain sections of the ordinance. Opponents may be opposed to any nonsmoking ordinance, and therefore might not be worth the time and energy necessary to convince them. How can the opposition be persuaded to support the ordinance? Who among Committee members or volunteers has the expertise to handle the opposition?

3) Establishing clearly the issues related to the ordinance, and who speaks for the coalition.

   In some communities there have been problems in this area. It is important that everyone speaking for the Committee identify themselves as such, and that all spokespersons understand the issues related to the ordinance. With detailed fact sheets and clear understanding of the goal of the coalition, any member should be able to speak for the group.

4) Making decisions on best use of time and energy.

   Keep in mind that time is limited for most people. Staying in close contact with Council members may be more of a priority than getting articles run in local newspapers.

5) Devoting time to encourage, praise, thank members for hard work.

6) Allowing time for socializing among members to relieve the pressure of difficult work and to increase goodwill.

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SECTION II.
WORKING WITH A CITY COUNCIL

The working relationship between the Steering Committee and City Council will influence not only the ease with which an ordinance is established, but will also affect the implementation. Included here are suggestions and sample correspondence for establishing and maintaining a good relationship with the City Council.

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Tips For A Successful Working Relationship

1. Make a personal visit, if possible, to each Council member. Arrange an appointment with either the Council members, or in large cities, the Council member's aide. State the nature of the issue you are concerned about when you call for an appointment.

2. If you cannot make a personal visit, write a letter. Discuss only the issue of a local ordinance, and limit the letter to one page.

3. Whether you plan a personal visit or a letter, you should provide your elected officials with a very brief summary of the issue at hand. This summary should be attached to your letter, or included in the agenda during your visit. Leave a copy with them for future reference.

4. If planning a personal visit, familiarize yourself with the facts and outline what you want to say. Always be courteous, appreciative, and express your gratitude. Based on the councilperson's reaction to your proposal, decide whether further work needs to be done to gain his/her support.

5. Attend several City Council meetings before introducing your proposed ordinance so that you will be familiar with Council procedures.

6. Establish and maintain contact with the Council Secretary. He/She can answer questions and explain procedures for presenting an ordinance for vote.

7. Continue educating Council members prior to the ordinance hearings through phone and letter writing campaigns. Include compelling health and economic reasons for the ordinance, and counter arguments to statements made by the opposition (See Section IX). Fact sheets that can be read quickly are preferable to detailed reports.

8. Focus on council members who are undecided or only slightly opposed. Don't waste time on those who are adamantly opposed to the ordinance.

9. Submit a draft of the proposed ordinance to the city attorney for his/her review.

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_____, 19_____

_____
City Councilperson

_____

_____, Texas _____

Dear _____:

A community-wide committee is in the process of proposing a clean indoor air ordinance for the City of _____. We would like to request a first reading and public hearing of this ordinance at the City Council meeting on _____ with a second reading on _____.

Our committee has been actively meeting on a weekly basis since _____. Our plans include an extensive media blitz, letters of support from community organizations (principally health related), and testimonies at the public hearing.

The proposed ordinance was submitted for review to the city attorney in _____. We also plan to furnish you with a full information packet and supporting literature in addition to a copy of the proposed ordinance prior to the first reading.

We would appreciate your consideration of this proposed ordinance. We have enclosed a fact sheet which gives some background information on some of the reasons behind our efforts.

Sincerely,

_____
Local American Lung Association

_____
Local American Cancer Society

_____
Local American Heart Association

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SECTION III. WORKING WITH THE MEDIA

An organized media campaign serves two primary functions: 1) assists the Steering Committee in determining support and opposition to a nonsmoking ordinance and, 2) generates community interest in an ordinance. If it is determined that there is general community support for an ordinance, the Steering Committee can decrease the amount of time and energy devoted to this task.

Working with the media can be frustrating for anyone not experienced with the operations of a newspaper, radio or television station. It is advisable for the Steering Committee to carefully select individuals to conduct the media campaign who have previous experience in talking to the press or first hand knowledge of media operations. The following pages include suggested media projects, tips on arranging meetings, and sample news releases.

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Possible Media Projects

1. Invite an editor or news director to lunch. Request space or air time for articles or programs related to smoking.

2. Provide the media with profiles of local experts speaking on various aspects of smoking (i.e., dangers, cost, prevalence. See Section IX).

3. Write human interest articles on the effects of passive smoke on an asthmatic child, recovering cancer patient, ex-smoker, or any other member of the public.

4. Offer to have medical experts appear on local TV or radio talk shows.

5. Small newspapers always need stories and local talk shows need participants. Supply your local media with names of Committee members who have been appointed as spokespersons for the Committee. If the media needs a filler they will know who to contact.

Remember —

- Always emphasize the health issue.
- Spokespersons should be appointed by the Steering Committee to serve as representatives for the opinions of the Committee, not personal interests.
- Keep the tone helpful and casual, not aggressive.
- Always send thank you notes.

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Arranging A Meeting With A Newspaper Editor Or News Director

1. Call the Editor to make an appointment. (In a larger city, it might be preferable to send a letter first, then make a follow-up telephone call.)

2. During the telephone call, introduce yourself. Explain that your Committee wants to talk with (name of newspaper)'s editorial board about important public health legislation, a City Nonsmoking Ordinance.

3. Assure the editor that you'll only need 30 minutes for the meeting.

Planning The Meeting:

1. It is preferable to have three volunteers make this presentation to the editor and the editorial board.

2. Leave a packet of materials with the editor. This packet should include a copy of the proposed ordinance fact sheet, the Texas Poll results and prevalence statistics. These will assist the editor in writing an editorial if he/she chooses and will also provide reference materials for their files. Make sure you have a copy of the "letter-to-the-editor" in case the editor isn't willing to write an editorial. (Sample included in this Section)

The letter to the editor should state the individual's support for the Clean Indoor Air Ordinance and request the support of other citizens and the support of the City Council and County Commissioners' Court.

The letter should also include some documentation or facts. (See fact sheet.)

Below are tips for writing a letter to the editor:

a. Focus. Write about one topic. Resist the urge to mention several issues. The letter will lose its impact.
b. Write calmly and factually.
c. Have ideas, suggestions clearly defined.
d. Make sure facts are correct and correctly attributed.
e. Write to the length of other letters the newspaper prints. If editors have to shorten the letter, they may not bother to run it at all or may miss key points.
f. Include full name and address. Editors do not print anonymous letters.

3. Leave telephone numbers and names of people for the editor to follow up with for additional information or for updates on the ordinance.

4. Prepare an agenda to ensure that the meeting runs smoothly and on time. Localize the agenda for the meeting. Decide ahead of time who will cover each item. Allow plenty of time for questions and answers.

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Sample Agenda

I. Introductions

II. Purpose

Explain purpose of meeting:

"To share with you the importance of the local nonsmoking ordinance and how important passage is to the health of (name of city)'s citizens.

III. Reasons To Support A Local Nonsmoking Ordinance

A. Summarize facts associated with smoking, using background information on Fact Sheet.
B. Outline Texans' feelings about smoking restrictions, using Texas Poll results. [See next page.]

IV. Summarize The Nonsmoking Ordinance

Highlight the points in the ordinance, using the ordinance highlights on the Fact Sheet.

V. Questions And Answers

VI. Adjournment

Wrap up and thank yous. Be sure to leave within 30 minutes, as you promised.

VII. Follow Up

Send a thank you letter after the meeting. Remind the editor that you will keep him/her informed on the progress of the ordinance.

2021391243

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Letter-To-The-Editor

Date

Editor
Newspaper
City, State Zip

Dear Editor:

The American Cancer Society, American Heart Association and American Lung Association, in cooperation with other local groups, are advocating passage of a local nonsmoking ordinance to protect nonsmokers.

Enactment of a local nonsmoking ordinance would prohibit smoking in public places and public meetings, except in designated areas. Passage of this act would be an effective way to reduce smoking and protect citizens from health problems related to involuntary smoke.

According to a November 1986 poll commissioned by the Texas American Heart Association, 77 percent of Texans favor state legislation prohibiting smoking in public places and 67 percent of Texans favor legislation requiring policies affecting the workplace. In December, 1986, C. Everett Koop, M.D., Surgeon General of the United States issued a definitive statement on the hazards of second-hand smoke. Dr. Koop said, "We believe there is all the medical evidence necessary to support reasonable and sensible protection for the nonsmoker against the irritation and potential harm that comes from other peoples' smoke." You must agree that cigarette smoking is a major health risk to both the smoker and nonsmoker.

As volunteers for the American Cancer Society, American Heart Association and the American Lung Association, we urge you to contact your City Council and ask them to support this important health issue.

Sincerely,

(Your Name)
ACS Volunteer

(Your Name)
AHA Volunteer

(Your Name)
ALA Volunteer

2021391244

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

The following is a suggested "first article" to introduce the community to the issue.

SMOKING AND HEALTH

Smoking is losing its appeal, according to a 1986 survey by the Centers for Disease Control (CDC) in Atlanta, Ga. The overall national cigarette smoking rate fell to its lowest level, with 26.5 percent of adults older than 17 reporting that they smoked. This is more than a four percent drop from 1985, when 30.4 percent of the adults surveyed said they smoked.

"Public awareness of the health hazards from smoking and the decreasing social acceptance of tobacco have helped reduce the number of smokers," said Ron Todd, coordinator of the Office on Smoking and Health at the Texas Department of Health.

Dr. Ronald Davis of the CDC predicts smoking rates will continue to drop until only the "hard-core" smokers remain, about 10 to 15 percent of the population.

In the 1986 CDC study, which involved more than 13,000 adults nationwide, 29.5 percent of the men and 23.8 percent of the women surveyed said they smoked. A national health survey in 1985 showed that 33.2 percent of men and 27.9 percent of women were smokers.

The 1986 survey indicates more black men than white men tend to smoke (32.5 vs. 29.3 percent). Black women use tobacco more than white women (25.1 vs. 23.7 percent).

For men, the smoking habit is most prevalent between the ages of 35-44, when 37.1 percent of males smoke. Women's highest usage rate, 29.2 percent, occurs in the 25 to 34-year-old age group. On the average, men smoke 22.8 cigarettes per day, while women smoke 19.1 cigarettes.

"People are realizing the need to stop smoking," Todd said. "In the past two years, over 29 Texas cities have adopted ordinances restricting smoking in public places. In the last year, 100 worksites have requested our assistance in developing workplace nonsmoking policies. Smoking is no longer the social norm."

For information on smoking and other tobacco use, call the Texas Office on Smoking and Health toll-free at 1-800-345-8647.

2021391245

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample News Release

SECOND-HAND SMOKE ALERT

A new phenomenon is emerging. Nonsmoking is becoming the norm at work and throughout American society.

Seventy-four percent of the civilian population over 20 years of age are nonsmokers. This heretofore "silent majority" are becoming more vocal in their objections to exposure to the smoke from cigarettes.

In December 1986, C. Everett Koop, M.D., Surgeon General of the United States issued a definitive statement on the hazards of second-hand smoke. Dr. Koop said, "We believe there is all the medical evidence necessary to support reasonable and sensible protection for the nonsmoker against the irritation and potential harm that comes from other people's smoke. We base this conclusion on the following:

We know that the harmful constituents of mainstream cigarette smoke are found in sidestream smoke, sometimes to a greater extent than in mainstream smoke.

We know that pollution from tobacco smoke in homes, offices, other worksites and in certain public places can reach levels which exceed contaminant levels permitted under environmental and occupational health regulations.

We know that nonsmokers absorb the constituents of tobacco smoke into their bodies, even though in smaller amounts than is true of those who smoke.

We know that passive smoking can make the symptoms of asthma and chronic bronchitis worse, and make life miserable for people with allergic conditions.

We know that maternal smoking has a harmful effect on pregnancy, including an increased risk of miscarriage, stillbirth, death soon after birth, low birth weight and fetal death.

And finally, there is increasing evidence to suggest that environmental tobacco smoke can bring about disease, including lung cancer, in healthy nonsmokers, including infants and children.

It is on the basis of these facts that I advise nonsmokers to avoid exposure to cigarette smoke wherever possible, and that in particular they should protect infants and young children from this smoke."

Dr. Koop's warning has been heeded by more than 30 of Texas' more progressive communities and county governments. Local ordinances have been enacted which restrict smoking in public places. The November 1986 Texas Poll revealed that 77 percent of all Texans favor state legislation prohibiting smoking in public places. In addition 67 percent favor legislation requiring policies affecting the workplace.

2021391246

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Ordinance Fact Sheet

The following is taken from a proposed state ordinance. You will want to write your own fact sheet about your community's proposed ordinance, for distribution to the media, City Council and interested citizens.

Bill Highlights:

- The purpose is to protect the public health, comfort, and environment by prohibiting smoking in public places and at public meetings except in designated smoking areas.
- Signs prohibiting smoking must be posted at all building entrances except in designated smoking areas.
- Proprietors of public places must make a reasonable effort to prevent smoking by:
  - — Designating smoking areas;
  - — Posting signs properly;
  - — Requesting that smokers refrain from smoking in nondesignated areas.
- In the workplace, a written smoking policy must be implemented accommodating smoking and nonsmoking employees within 90 days after the effective date.
- In restaurants with 25 seats or more, customer preference must be considered in determining the size of a designated smoking area.
- Smoking at a public meeting or in a public place that is not a designated smoking area is a violation and punishable by a fine of $100.
- Bars, restaurants with 25 seats or less, or retail stores that primarily sell tobacco may be designated as a smoking area in their entirety.
- Local governments may adopt more stringent ordinances regulating smoking in public places and in public meetings.
- Effective January 1, 1988.

2021391247

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

SECTION IV.
BUILDING
COMMUNITY SUPPORT

Local ordinances are passed because the majority of the people in a community want to see smoking restricted in public places. In many communities an ordinance can be implemented by the actions of a *few* people that represent the majority of the public. This can certainly happen when a majority of the City Council supports the ordinance from the beginning. However, other communities may need a highly organized and lengthy campaign, with support built gradually through the media and personal contact.

The Steering Committee may need to solicit additional help from persons in the community who actively support the ordinance but do not have the time to serve on the Steering Committee. Suggestions for organizing additional community support are included here, as well as a list of possible projects.

2021391248

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Suggestions For Organizing Volunteers

1. The Steering Committee should first determine who is needed for the tasks. What expertise is lacking among Committee members? What special skills are needed? Who can add credibility to the issue? Based on the presumed reaction of the community to the ordinance, who could best address objections, fears, misconceptions?

2. Specific projects for these volunteers should be planned carefully. What will they be doing? What are their objectives? Are there time requirements for projects? What materials/resources will they need?

3. The Steering Committee should appoint one of its members to provide leadership for the volunteers. If problems or questions arise, the volunteer coordinator would serve as contact person, and would also report to the Steering Committee on the progress of projects.

4. Volunteers should be required to attend an orientation meeting. A suggested agenda would be:

   a. Introduction of Steering Committee and its objective (draft of ordinance, if possible)
   b. A review of the issues
   c. Suggested Projects (allowing for input/suggestions from volunteers)
   d. Suggested Time Table (again, allowing for input from volunteers)

   The Steering Committee and Volunteer Coordinator should make certain that each person understands his/her job before leaving the orientation. Materials and resource packets should be put into their hands. They should be sent out the door enthusiastic and eager to begin. If possible, set another meeting date when they can share success stories and achievements.

5. Express the Committee's gratitude to the volunteers.

2021391249

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Possible Projects for Volunteers

1. Personal contact with Council members who oppose the ordinance (or who have reservations about it) can be helpful. A community volunteer might arrange a meeting with a Council member, to discuss the necessity for and provisions of the ordinance. This can be especially helpful if the volunteer has had a prior business or personal association with the Council member.

2. A community volunteer having some contact with a local newspaper can arrange for articles to be run introducing the ordinance, addressing objections or soliciting support. This contact person could arrange a meeting between the editor and Steering Committee members.

3. Community volunteers are often needed to fill City Council meetings as a way of demonstrating support for the ordinance. These persons may be asked to testify at Council meetings or simply wear buttons indicating their opinion.

4. Community volunteers can also assist with various office work tasks, such as:

   a. letter writing and phoning
   b. making signs and buttons
   c. updating mailing lists
   d. making copies
   e. obtaining office supplies

When someone asks "What can I do?" always have an answer!

2021391250

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Letter To Volunteers And Supporters

Date

Name
Address
City, Texas Zip Code

Dear (Name):

The American Heart Association, the American Lung Association and the American Cancer Society in Texas have been actively involved in promoting a statewide clean indoor air law and similar local ordinances. Clean indoor air ordinances would, with a few exceptions, prohibit smoking in public places. We see passage of these initiatives as an effective way to reduce smoking as well as protect the public from the problems related to second-hand smoke.

(Name of city) City Council is considering a Clean Indoor Air Ordinance. We need your support in asking volunteers to join together in an effort to pass local ordinances similar to those already passed in Dallas, Kerrville, Fort Worth, Tyler, Bryan, Austin and other cities.

A meeting on this issue will be held on (date, day) at (time) at (location). Volunteers will be needed to attend the Council meetings as a show of support, testify in favor of the ordinance, write letters-to-the-editor, and write, telephone or visit a City Council member. If you can help with any of these activities, please call (name of contact) at (phone number).

Thank you for your support and assistance.

Sincerely,

(Name)
Volunteer
American Heart Association

(Name)
Volunteer
American Lung Association

(Name)
Volunteer
American Cancer Society

2021391251

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

SECTION V.
PREPARING TO SPEAK AT THE CITY COUNCIL MEETING

The Steering Committee should carefully select individuals to present testimony to the City Council. Credentials are important, but the ability to speak well to a large audience is more important. These persons may deliver speeches based on the samples included here, or they may choose to write their own. In the latter case, the text should be approved by the Committee. It might be helpful to provide Committee meeting time for presentation of the speeches as "practice" before the main event.

Suggestions of individuals to present testimony include

1. restaurant owners
2. medical doctors
3. American Lung Association, American Heart Association and American Cancer Society representatives
4. retail business owner/manager
5. nurses, including school nurses
6. city, county, state health officials
7. school administrators, teachers, coaches
8. parent of an asthmatic child
9. relative of a deceased smoker
10. teenager
11. smoker
12. religious leaders

2021391252

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Testimony

Mayor, Members of the City Council:

My name is [_____].

I am an attorney who is here to urge the Council to adopt the non-smoking ordinance.

Passage of the ordinance will assist employers in avoiding liability for failing to provide employees a safe workplace.

Texas employees have a legal right to a safe workplace. Courts in many states are now taking judicial notice of the toxics in cigarette smoke and the association of breathing those toxics with such disabilities as asthma, emphysema, lung cancer, heart disease, and bronchitis. The courts are holding that employers must provide a smoke-free workplace for employees who have special sensitivities to cigarette smoke.

This Council can help employers take preventative actions now that will eliminate future disability and workers compensation payments. You can help [city] employers limit future liability for failing to provide a safe workplace by adopting the non-smoking ordinance.

Thank you.

2021391253

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Testimony

Mayor, members of the City Council.

My name is [_____]

I am a member of the [name of organization] and attended the last City Council meeting in which the proposed ordinance limiting smoking in public places was unanimously passed on the first reading.

In the intervening weeks, much has been said and written both pro and con about the ordinance.

About the only negative comments come from two sectors: The first category includes those who support the ordinance but are concerned over having to enforce it in their businesses. The answer to their concerns seems to lie in time since cities with similar ordinances report voluntary compliance, making enforcement an issue of relatively little concern. Also, as progressive a city as [city name] is, surely businesses and the city can come up with workable ways to enforce the ordinance in those relatively few cases when it needs to be.

The second category of critics of the ordinance fall into the few uninformed or misinformed who feel that the ordinance seeks to keep smokers from smoking. Although a potentially fortuitous side stream benefit (so to speak), this is NOT the intent of the ordinance. The intent of the ordinance is ONLY to keep smokers from smoking in places where non-smokers have to breathe.

To those critics in this second category who seem to take offense at what is seen as the latest attempt of "do-gooders" to usurp their rights, I would like to quote the man who, in his "Letter to the Editor", quoted ABC Commentator Paul Harvey's saying that "your rights stop where my nose begins". This quote is particularly apt in this situation; although to those I would add eyes, lungs, and heart.

I urge you to pass the ordinance and to support its enforcement. And its citizens will be the better for it. It is an exemplary way to start the New Year!

Thank you very much!

2021391254

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Testimony

Mayor, Members of the City Council:

My name is [_____].

As Chairperson of [name of group], I would like to thank you for holding this timely public hearing. The regulation of smoking in public places and the workplace is based upon the fundamental responsibility and power of government to protect the health and safety of its citizens. The adverse effects of secondhand tobacco smoke are of such consequence that action is required.

I firmly believe that in [city], Texas, local values can prevail against the commercial pressures from outsiders like the Tobacco Institute and its local allies and agents. Do not be lulled by the tobacco industry's theme song of costs, enforcement, and government intrusion. Keep your focus on the real issue of health, and let the experience of other communities as well as the experience of Minnesota be your guide on the red herring issues raised by the opponents of this ordinance—opponents that apparently place economic self-interest above public health.

We stand ready to answer any questions or work with City Staff or any legitimate local business regarding questions of interpretation, need for constructive revision, or policy concerns in implementation of this moderate and balanced ordinance.

Thank you.

2021391255

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Testimony

Mayor, Members of the City Council:

My name is [_____], and I live in [city].

I support the proposed ordinance because it would begin to change the current, absurd system which requires that nonsmokers must search for a safe place to breathe. Instead, a smoker would be required to take responsibility for the toxic by-products of his or her habit by seeking an appropriate place to smoke.

The tobacco industry continues to deny any link between passive smoking and health. As the mother of a four-year-old child with asthma, I personally know the effects of passive smoking. I do not have to be a researcher or a doctor to know that tobacco smoke triggers my daughter's asthma attacks. She,like all of us, is bombarded by secondhand smoke in stores, public restrooms, grocery stores, restaurants, and even in the cashier's line at the pharmacy where we purchase her antiasthmatic prescription drugs.

Her asthma attacks are immediate and severe. She is just one of the over 6 million asthmatics in the United States. And asthma is just one of the bronchial disorders adversely impacted by smoke.

I would like to quote Dr. C. Everett Koop, M.D., Surgeon General:

*There is all the medical evidence necessary to support reasonable and sensible protection for the nonsmokers against the irritation and potential harm that comes from other people's smoke.
*The harmful constituents of mainstream cigarette smoke are found in sidestream smoke, sometimes to a greater extent than in mainstream smoke.
*Passive smoking can make the symptoms of asthma and chronic bronchitis worse, and make life miserable for people with allergic conditions.
*There is increasing evidence to suggest that environmental tobacco smoke can bring about disease, including lung cancer, in healthy adults, children and infants.

Experience, in places such as Minnesota, San Francisco, and San Diego, shows that regulations such as this proposal are workable and popular, even among smokers. Based on the ever-mounting evidence confirming that ambient smoke is indeed a health hazard, not simply an annoyance, the only responsible course of action is your vote for a strong and effective ordinance to restrict public smoking in [name of city].

Who else can protect my children and the other children of [name of city] from the American cigarette companies and the $2.7 billion they spend each year advertising their dubious products?

Thank you.

2021391256

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Testimony

Mayor, Members of the City Council

My name is [_____].

A new study by the Federal Office of Technology Assessment indicates that the cost of smoking to the American public can well top 100 billion dollars a year. This includes 12 to 35 billion dollars each year to treat smoking-related diseases. Such diseases result in productivity losses to the economy of 27 to 61 billion dollars. Smoking increases costs paid by the federal government to the Medicare Program by 1.7 to 5.4 billion dollars per year.

Smoking's negative effects on health and safety produce financial losses, too. Society as a whole — and employers in particular — suffer the economic impact. Smoking increases:

- Health care costs
- Absenteeism
- Disability retirements
- Accidents
- Losses due to fire
- Property damage
- Insurance costs
- Lost productivity

Employers are learning the effects of smoking in their companies.

- The chairman of General Motors estimates that smoking-related costs add $500 to the price tag for each auto produced.
- Studies of hotels which offer smoke-free rooms show that nonsmoking rooms rent 30% faster than smoking-permitted rooms and the costs for maintenance are 50% lower in nonsmoking rooms.
- Economists calculate the average smoking worker costs his or her employer 1,000 to 4,000 dollars every year compared to a nonsmoking worker.

This ordinance will help [city] employers, including the city, to lower the costs we all directly or indirectly pay.

Thank you.

2021391257

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Testimony

Mayor, Members of City Council:

My name is [_____].

Cities and states that have enacted comprehensive smoking restrictions have experienced virtually no problems in compliance and enforcement, and have found that such restrictions are overwhelmingly popular.

According to an August 15, 1984, Wall Street Journal article, the San Francisco ordinance that restricted smoking in the workplace-and whose language is virtually identical to the Austin language—is working well. Bruce Tsutsui (pronounced SUTT-SWE), the inspector who handles complaints in San Francisco, said, "We had hoped it would be self-enforcing, and it's been going that way."

A study after 12 months showed only 124 complaints, all resolved without fines or litigation. No additional employees were hired to enforce the ordinance, and no special funds were needed.

2021391258

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample Testimony

Mayor, Members of the City Council:

My name is [_____].

I want to share with you why restaurants benefit from the proposed ordinance.

The April 1983 Gallup Poll on "Attitudes toward Smoking" shows that 86% of smokers agree that nonsmokers and smokers should be provided with separate sections, or smoking bans. In the July 1984 Texas Poll by Texas A&M University, a majority of respondents said they support mandatory separation of smokers in restaurants and the workplace. An even more recent Gallup Poll dealing with "Eating Out" reports the third most common response to the question "Why don't you eat out more often?" was that those answering did not eat out more because they were bothered by ambient smoke.

Restaurant owners can do little to compete with home-cooked food and home atmosphere—the two most common reasons for not eating out more—but they can easily provide nonsmokers with clean air.

When assured of clean air by this ordinance, the public, I believe, will eat out more frequently. In addition, restaurateurs will clearly benefit from significantly lower maintenance and operating costs, as well as an increase in the number of seatings achieved during peak periods.

Thank you.

2021391259

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

SECTION VI. IMPLEMENTATION OF THE ORDINANCE

Your city's nonsmoking ordinance has been voted on and accepted by the City Council. The Steering Committee and community supporters celebrate the event, perhaps with an appreciation luncheon or banquet. It may seem that the hard work is behind you. In fact, there is still work ahead.

2021391260

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

You have worked to establish an important regulation for your community, one that will directly benefit the health of its citizens. Now you must work to see that implementation of the ordinance is as smooth and trouble-free as possible. Your goals should be:

1) public education
2) limited enforcement
3) assisting with compliance

Public education involves getting the specific details of the ordinance to the public. In Texas cities where this was done successfully, enforcement citations were rarely necessary. Enclosed is a reprint of an information card distributed in Austin. You may want to develop something similar in your community. The media contacts you established early in your campaign may be willing to assist in public education. Ask community supporters to assist with distributing information on compliance to local businesses.

If possible, request that your City Council appoint a local health official to supervise compliance and enforcement. This person would be responsible for investigating complaints. In most communities, violation of the ordinances is a misdemeanor, which would involve the police in issuing citations. Since it is preferable to stress the health issue of compliance rather than the legal, the less involvement by law enforcement agencies the better.

It might be helpful to design a complaint form that can be completed by any citizen and delivered to the health official or city officer responsible for handling complaints. These forms should be made available throughout your community initially, perhaps at check-out counters and cashier areas, public libraries and doctors' offices.

As several communities with established ordinances have discovered, you may need to return to the City Council for the purpose of tightening loopholes that may have been discovered in the ordinance. Again, the better your working relationship has been with the Council and the enforcement agency, the easier this task will be.

On the sixth month or one-year anniversary of your ordinance, ask your media contact to report on the good news — how well the community has responded and complied with the ordinance.

2021391261

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Reprint of Austin Information Card.

TO ALL AUSTIN EMPLOYERS, BUSINESS OWNERS AND MANAGERS:

The Austin City Council has passed a Clean Indoor Air Ordinance to protect the public health from damage due to second-hand tobacco smoke.

While we trust that you will abide by the law, please be advised that any citizen may choose to initiate prosecution for any observed violation of the ordinance.

ANY VIOLATION OF THE CLEAN INDOOR AIR ORDINANCE MAY LEAD TO A FINE OF $1000 PER OFFENSE. EACH DAY A VIOLATION CONTINUES IS A SEPARATE OFFENSE.

SUMMARY OF AUSTIN CLEAN INDOOR AIR ORDINANCE
(Ord. #860116-I)

The ordinance specifies that PUBLIC PLACES IN AUSTIN ARE NONSMOKING AREAS: *if certain criteria are met*, smoking areas *may* be set aside within these public places. "PUBLIC PLACES" include any indoor area used by the general public, any indoor place of employment, any fenced area of city swimming pools, and taxicabs.

NOTHING IN THE ORDINANCE REQUIRES ANY PUBLIC PLACE TO PERMIT SMOKING. THE ORDINANCE ENCOURAGES SMOKE-FREE ESTABLISHMENTS AS A MEANS OF COMPLIANCE.

SMOKING AREAS

ALTHOUGH NO PUBLIC PLACE IS REQUIRED TO PERMIT SMOKING, IF A SMOKING AREA IS CREATED, IT MUST:

- be situated so that ventilation does not draw smoke into or across non-smoking areas;
- be no larger than the proportion of patrons normally requesting a smoking area;
- be marked by clearly visible and easily read signs and contain ashtrays;
- be set apart or separated from non-smoking areas;
- not include cashier areas or service lines.

THE WORKPLACE

EVERY EMPLOYER IS REQUIRED TO ADOPT AND CONSPICUOUSLY POST A WRITTEN EMPLOYEE SMOKING POLICY WHICH INCLUDES THE FOLLOWING:

Any employee may object to smoke in the normally frequented work area. The employer shall attempt to accommodate non-smokers and smokers by using available ventilation and separation. If an accommodation cannot be reached, THE PREFERENCE OF THE NON-SMOKER SHALL PREVAIL, except when non-smokers are in designated public smoking areas or in private offices occupied exclusively by smokers.

SIGNS

CLEARLY VISIBLE AND EASILY READ SIGNS MUST BE POSTED AT EACH ENTRANCE TO A PUBLIC PLACE NOTIFYING THE PUBLIC WHETHER (1) SMOKING IS PROHIBITED THROUGHOUT, (2) SMOKING IS PROHIBITED EXCEPT IN DESIGNATED AREAS OR (3) SMOKING IS PERMITTED THROUGHOUT. Lettering must be no smaller than two inches high.

EXCEPTIONS TO THE ORDINANCE

Tobacco retail shops, separate restaurant bar areas and bars deriving more than 50% of their income from alcohol sales may permit smoking throughout but must bear proper signs. This is also true for an establishment whose management can show that 95% of its patrons normally request a smoking area. Private social functions in enclosed, separated areas of public places are exempt.

OFFENSES

Any person smoking in an enclosed public place not designated as a smoking area is in violation of the ordinance. Further, any person in charge of an enclosed public place also violates the ordinance if he/she fails to make a reasonable attempt to prevent smoking in any area not designated as a smoking area upon becoming aware of such an occurrence.

EACH VIOLATION IN PUNISHABLE BY $1,000 PENALTY

Upon observing any violation of the ordinance, an individual may:

ASK THE SMOKER to extinguish his/her smoking material; or
ASK THE PERSON IN CHARGE to make a reasonable effort to prevent the smoker from smoking in a non-smoking area; or
REQUEST THE AUSTIN POLICE DEPARTMENT to come and identify the smoker, if necessary; and/or
FILE A FORMAL COMPLAINT at Municipal Court, 700 East 7th Street. Municipal Court is open 24 hours per day, 7 days a week. The person filing the complaint must be able to identify the violator.

2021391262

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Violations may also be reported to the Austin-Travis County Health Department (469-2015). The Health Department will first seek voluntary compliance. If compliance does not occur, the Department will file a complaint in Municipal Court, which can result in a fine of $1000 per offense.

AID IN COMPLIANCE

Sample copies of the ordinance, guidelines, written employment smoking policies and patron polling forms are available from the Austin-Travis County Health Department at 469-2015. The Health Department is available during normal business hours to answer questions concerning all aspects of the ordinance.

FRIENDS OF AUSTIN NONSMOKERS
P.O. BOX 180751 AUSTIN, TEXAS 78718

These cards are distributed as a public service by Friends of Austin Nonsmokers (FANS), a local organization working to protect the public from the health damage caused by exposure to secondhand tobacco smoke. FANS is the citizens' organization primarily responsible for the passage of the Austin Clean Indoor Air Act.

FANS also publishes a newsletter on smoking and nonsmokers and nonsmokers rights, and sells signs, buttons, stickers, etc., to help nonsmoker gain their rights.

To join, or for further information, write FANS at the address above. For additional free cards, please enclose a large, stamped, self-addressed envelope.

Contributions to FANS are urgently needed. Please contribute if possible.

WHAT YOU CAN DO TO HELP PROTECT NONSMOKERS

- KNOW YOUR RIGHTS as a nonsmoker, and insist on them.
- FILE formal complaints if you are denied your rights.
- ADVISE others of their rights, and encourage them to file complaints when necessary.
- DISTRIBUTE these cards to other nonsmokers.
- JOIN and support FANS and other nonsmokers' rights groups.
- USE signs, buttons, etc., to speak out.
- HELP ENFORCE existing no-smoking laws wherever they exist.
- WRITE legislators and other officials for more clean air laws.

2021391263

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

SECTION VII.
SAMPLE ORDINANCE

The enclosed sample ordinance is a generic form of the Austin city ordinance. Community organizers have praised this comprehensive ordinance and adapted it to fit community needs both statewide and outside Texas. It will provide your Committee with a starting point from which to develop your own ordinance.

"Nonsmoking Ordinance Principles" is a listing of definitions and terms used in the sample ordinance. The Committee may want to use this as a checklist during discussions leading to development of an objective, or to clarify specifics of the ordinance.

2021391264

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Sample City Smoking Ordinance

WHEREAS, the Surgeon General of the United States has declared that smoking is the number one public health issue of our time; and

WHEREAS, smoking is a detriment to the economic health of a business; and

WHEREAS, the City of _____ recognizes the increasing evidence that smoke creates a danger to the health of some citizens, and is a cause of annoyance and discomfort to those who are in confined spaces where smoke is present; and

WHEREAS, in order to protect the health and welfare of those citizens, as well as to protect the rights of smokers and nonsmokers, it is necessary to restrict smoking in public places except in areas designated as smoking areas; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF _____:

PART 1.

(a) In this ordinance:

(1) "Employee" means any person who is employed by an employer in consideration for monetary compensation or profit;

(2) "Employer" means any person, partnership, corporation, association or other entity, that employs one or more persons;

(3) "Place of employment" means any enclosed indoor area under the control of an employer to which employees have access during the course of employment, including, but not limited to work areas, employee lounges, employee restrooms, conference rooms, and employee cafeterias; A private residence is not a place of employment.

(4) "Public place" means

a. any enclosed indoor area that is used by the general public, or that is a place of employment, and includes, but is not limited to: stores, offices, and other commercial establishments; restaurants; public and private institutions of higher education; health care facilities; nursing and convalescent homes; and government subsidized senior citizen residential facilities;

b. any public swimming pool owned or operation by the City, inclusive of the entire area within the enclosure device.

(5) "Service Line" means any indoor line at which one or more persons are waiting for or receiving service of any kind, whether or not such service involves the exchange of money;

(6) "Smoke" or "Smoking" includes the carrying or holding of a lighted pipe, cigar or cigarette of any kind, or any other lighted smoking equipment or device, and the lighting of, emitting or exhaling the smoke of a pipe, cigar or cigarette of any kind.

(b) A person commits an offense if he:

(1) knowingly or intentionally smokes in a public place and is not in an area designated as a smoking area under this ordinance;

(2) knowingly or intentionally smokes in a taxicab that is not a taxicab in which smoking is permitted; or

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

(3) is the owner, lessee or other person in charge of a public place, and knowingly or intentionally permits, or fails to make a reasonable effort to prevent commission, by another, of the offense described in subsection (1) of this section within such public place.

(c) (1) The owner, lessee or other person in charge of a public place may, but is not required to designate one or more areas as smoking areas.

(2) If a smoking area is designated in a public place, each such smoking area shall:

a. be not larger in size than proportionate to the preference of the users normally requesting a smoking area, as can be demonstrated by the owner, lessee, or other person in charge;
b. be situated so the ventilation minimizes the effect of smoke in adjacent non-smoking areas, and so that air from the smoking areas is not drawn into or across a non-smoking area;
c. be designated by appropriate signs which are clearly visible to patrons in or entering the area;
d. contain ashtrays, containers, or other facilities for extinguishing of smoking materials; and
e. be set apart or separated from non-smoking areas; and
f. not include service line or cashier areas.

(3) In the event the owner, lessee or person in charge of a public place can demonstrate that the users or patrons normally requesting a smoking area constitute such a large portion of the users of the public place that it is impracticable for the owner, lessee or person in charge to meet the requirements of sections (c)(2) b. and (c)(2)e. without structural or other physical changes or significant expenditures, the owner, lessee or person in charge may designate an area not meeting the requirements of (c) (2) a. (including the entire public place, except for those areas designated in (c) (2) f.) as a smoking area. If the entire area is designated a smoking area, the owner, lessee or person in charge shall place a sign or signs at each entrance to the premises which are clearly visible and state that smoking is permitted throughout the premises.

(d) Except as provided by the preceding section, the owner, lessee or other person in charge of a public place shall place a sign or signs, visible at each entrance to the premises, notifying persons entering the premises that smoking is prohibited, or that smoking, other than within designated smoking areas, is prohibited.

(e) (1) The holder of any franchise to operate a taxicab within the City may, but is not required to designate one or more of the taxicabs in operation pursuant to said franchise, as taxicabs in which smoking is permitted.

(2) Each taxicab shall be designated by notices clearly visible to persons entering or in the taxicab as a taxicab in which smoking is permitted or a taxicab in which smoking is not permitted.

(f) Each employer who operates a place of employment in the city shall, within three (3) months of adoption of this ordinance, adopt, implement and maintain a written smoking policy which shall contain, at a minimum, the following provisions and requirements:

(1) Any nonsmoking employee may object to his or her employer about smoke in any portion of his or her place of employment normally frequented by said employee. Using already available means of ventilation, separation or partition, the employer shall attempt to reach a reasonable accommodation, insofar as possible, between the preferences of nonsmoking and smoking employees. An employer is not required by this provision to incur any expense, or make structural or other physical modifications to accommodate the preferences of nonsmoking or smoking employees.

(2) If an accommodation which is satisfactory to all affected nonsmoking employees cannot be reached as to any portion of the place of employment about which complaint has been voiced, the preferences of nonsmoking employees shall prevail, to the end that nonsmoking employees may work in a smoke-free environment. No such portion of the place of employment shall be designated as a smoking area.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Provided however, the requirements of this subsection (2) shall not apply to nonsmoking employees whose job duties include serving of or routine interaction with members of the general public within designated smoking areas, nor to any private enclosed office workspace occupied exclusively by smokers, even though such office may be visited by nonsmokers.

(3) The smoking policy shall be announced within three (3) weeks of adoption to all employees working in the place of employment and posted conspicuously in all workplaces under the employer's jurisdiction.

(g) It is an exception to the application of paragraph (b) (1) of this ordinance that the person smoking tobacco or in possession of the burning tobacco product is in a situation in which the person is present at an event in which an entire room or confined area is used for a private social function and the event is under the control of the sponsor of the function and not of the owner, proprietor or person in charge of the public place. This exception includes, but is not limited to, areas of public places, such as hotels, which are normally rented out to private groups, and to areas of bowling centers used by bowling leagues during league play.

(h) The following public places are not subject to sections (b) (3) and (c) (2) of this ordinance, but such public places are encouraged, whenever possible, to follow the guidelines established in section (c) (2) of this ordinance:

(1) an establishment in which more than 50% of its annual gross sales is from alcoholic beverages sold for on-premises consumption;
(2) a separated bar area of a restaurant; and
(3) a tobacco specialty retail shop.

(i) The owner, lessee or other person in charge of any conveyance or place describe in Code _____, commits an offense:

(1) if he fails to have prominently displayed a reasonably sized notice that smoking is prohibited by state law in such conveyance and/or place; or
(2) if he fails to have such conveyance or place equipped with facilities for extinguishing of smoking materials.

(j) The violation of any provision of this ordinance shall be unlawful and a misdemeanor offense; each day a violation of this ordinance continues shall constitute a separate offense.

PART 2. Nothing in this ordinance excuses non-compliance with any State or Federal law, City ordinance, or any rule or regulation adopted pursuant thereto, which prohibits smoking.

PART 3. If any provision, section, sentence, clause or phrase of this ordinance, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, void or invalid (or for any reason unenforceable), the validity of the remaining portion of this ordinance or its application to other persons or sets of circumstances shall not be affected thereby, it being the intent of the City Council of the City of _____ in adopting, and of the Mayor in approving this ordinance, that no portion hereof or provision or regulation contained herein shall become inoperative or fail by reason of any unconstitutionality or invalidity of any other portion, provision or regulation.

PART 4. This ordinance shall be effective from and after _____.

PASSED AND APPROVED

_____, 19 ____

_____
Mayor

APPROVED: _____
City Attorney

ATTEST: _____
City Clerk

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Non-Smoking Ordinances Principles

Purpose:

The purpose is to protect the public health, comfort and environment by prohibiting smoking in public places and at public meetings except in designated smoking areas.

Definitions:

1. Public place means an enclosed indoor area used by the public including but not limited to:

   government buildings
   restaurants
   retail stores except those which primary business is sale of tobacco or tobacco-related products
   public primary or secondary school
   public institution of higher learning
   public means of mass transportation and associated terminals
   elevators
   health care facilities
   libraries
   courtrooms
   jury waiting and deliberation rooms
   grocery stores
   nurseries
   theaters
   auditoriums
   arenas
   recreational facilities
   places of employment
   places providing personal services

2. Government building means any building or portion of a building used for governmental purposes.

3. Public meeting means all meetings open to the public unless such meetings are held in a private residence.

4. Smoking means possession of a lighted cigarette, cigar or pipe or other tobacco product.

5. Smoking area means any designated area for smoking.

Prohibition:

No person may smoke in a public place or at a public meeting except in designated smoking areas.

Designation of Smoking Areas:

1. Smoking areas may be designated by person in charge of a public place.

2. In restaurants seating more than 50 people, customer preference will determine the size of the smoking area.

3. Existing barriers and ventilation systems shall be used to minimize smoke in adjacent nonsmoking areas, making sure that air from a smoking area is not drawn into or across a nonsmoking area.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

4. No requirement shall be made for structural or physical modifications.

5. A smoking area may not be designated in:

   elevator
   school bus
   public means of transportation
   restroom

6. A place of employment is not required to allow smoking. Employers who wish to permit smoking on premises shall develop and implement a policy regarding smoking and nonsmoking areas.

7. Restaurants, bars and bowling centers which elect to be designated as smoking in their entirety shall conspicuously post notices to that effect at all entrances.

Signs:

The person in charge of a public place shall conspicuously post signs (in an area designated as a smoking area) stating that smoking is permitted in such areas and may also post "no smoking" or "no smoking except in designated areas" signs as appropriate.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

SECTION VIII.
ESTABLISHED ORDINANCES

The following page is a listing of cities and counties that have established ordinances current as of the date indicated. Copies of these ordinances can be obtained by contacting the City Secretary in the respective cities.

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

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SECTION VIII.
ESTABLISHED ORDINANCES

The following page is a listing of cities and counties that have established ordinances current as of the date indicated. Copies of these ordinances can be obtained by contacting the City Secretary in the respective cities.

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

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Cities With Local Smoking Ordinances

1. Abilene
2. Addison
3. Arlington
4. Austin
5. Bedford
6. Bryan
7. Corpus Christi
8. Dallas
9. Del Rio
10. Denton
11. Eagle Pass
12. El Paso
13. Euless
14. Fort Worth
15. Grand Prairie
16. Greenville
17. Halton City
18. Houston
19. Huntsville
20. Hurst
21. Kerrville
22. Leon Valley
23. Longview
24. Lubbock
25. McAllen
26. North Richland Hills
27. Plano
28. San Antonio
29. Sugarland
30. Texarkana
31. Tyler
32. Wichita Falls

Cities Currently Considering Local Ordinances

1. Amarillo
2. Belton
3. Brownsville
4. Grapevine
5. Laredo
6. Midland/Odessa
7. San Angelo
8. San Marcos
9. Seguin
10. Temple

Ordinances For the Following Counties

1. Kerr County
2. Taylor County
3. Travis County

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

SECTION IX.
FACTS
CONCERNING SMOKING

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Arguments Against the Ordinance and Possible Responses

Sources: 1) "The Health Consequences of Involuntary Smoking" a report by the U.S. Surgeon General, and Bureau of National Affairs
2) The BNA Roundtable Discussion

1. The ordinance is an invasion of rights.

An ordinance doesn't take away rights, it actually protects the rights of smokers and nonsmokers. If you permit public places and worksites to become filled with cigarette smoke everyone exposed to that environment smokes either voluntarily or passively without choice. An ordinance permits smoking in designated areas yet restricts smoking where it may affect the health of those who choose not to smoke.

2. The dangers of passive smoke are not conclusive.

The Surgeon General has reported that cigarette smoke itself contains cancer-causing chemicals and is a cause of lung cancer in healthy nonsmokers. The children of parents who smoke have an increased frequency of respiratory infections, increased respiratory symptoms and slightly smaller rates of increase in lung function as the lung matures. The amount of uncertainty about the hazards of secondhand smoke is quite small compared with other things that we are quite happy to have government or employers regulate or reduce our exposure to. Why do we need to adopt a different standard for tobacco smoke than we have for benzene, carbon monoxide, asbestos or a number of other things for which we have already taken strong action to reduce or eliminate?

3. Ordinances are expensive to comply with, and impossible to enforce.

The Surgeon General reports that laws restricting smoking in public places have been implemented with few problems and at little cost to state and local government. In addition, it appears that workplace smoking policies improve air quality, are met with good compliance requiring little or no enforcement, and are willingly accepted by both smokers and nonsmokers. This holds true in Texas cities that have passed ordinances.

4. The ordinance will hurt business.

In the cities that have established ordinances, there has been no evidence to support this claim. Public opinion polls indicate growing support for restricting smoking in a wide range of public places. The majority of smokers respect the rights of nonsmokers, and many welcome restrictions as an opportunity to reduce their smoking.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Texas Statistics

Prevalence

27% of Texans age 18 and over are cigarette smokers
31% of Texas men smoke
23% of Texas women smoke
67% began between the ages of 11 and 19

Direct health care costs (expenditures for prevention, diagnosis and treatment of smoking-related diseases and medical conditions) = $1,518,085,731

Indirect mortality costs (the estimated cost of lost income and productivity for individuals who die prematurely from smoking-related illness) = $1,079,162, 215

Indirect morbidity costs (the estimated cost of lost income and productivity or individuals who are disabled by smoking-related disease or injury) = $616,978,157.

The total estimated annual smoking-attributable costs are equal to $1.83 for every pack of cigarettes sold in Texas or $1036 for every smoker age 18 and over in the state.

In addition, there are an estimated 16,697 smoking-attributable deaths in Texas annually. This represents 14.1% of the total deaths in the state.

Table 1
Texas Smoking-Attributable Deaths by Diagnostic Category 1986

Diagnostic Group	Males	Females	Both Sexes Ages 20-64	Both Sexes Ages 65 +
Lung Cancer	3666	830	1849	2647
Other Neoplasms	943	424	550	817
Ischemic Heart Disease	2766	964	1458	2272
Other Cardiovascular	1850	1828	760	2917
Respiratory	2275	978	609	2643
Tuberculosis	31	0	13	18
Ulcers	71	72	33	110
Column Total	11602	5095	5273	11424
Grand Total				16697

[redacted]
[redacted]
[redacted]

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

FACTS ON CIGARETTE SMOKING

- Smoking is the single largest preventable cause of premature death and disability in the United States.
- Every year 320,000 Americans die prematurely from diseases caused by cigarette smoking, such as lung cancer, emphysema, and coronary heart disease.
- Nicotine addiction is "the most widespread example of drug dependence in our country," according to the U.S. Public Health Service.
- Three-quarters of the adults who currently smoke started their habit before the age of 21; teenage years are critical ones in the habituation of cigarette smokers.
- Nine out of ten smokers say they want to quit.
- The number of Americans who have quit smoking is rising steadily. To date, 36 million Americans have quit smoking.
- Smoking accounts for 85-90 percent of emphysema mortality in America. Once a disease that affected exclusively men, one in four emphysema deaths now occurs among women.
- Lung cancer, already the number one cause of cancer mortality in American men, surpassed breast cancer as the leading cancer killer of American women in 1986.
- In 1985 lung cancer killed an estimated 38,600 women—approximately 84 percent of the 46,000 women who will be diagnosed with the disease this year.
- Smokers who have a heart attack have less chance for survival than a person who does not smoke. And by continuing to smoke after a heart attack, the person's chance for a second attack increases.
- Smoking has severe economic consequences for the nation, estimated at a staggering $42 billion in total annual costs. Direct costs account for 38 percent or $16 billion in lost productivity due to excess morbidity and mortality. Medicaid and Medicare are estimated to spend $4 billion each year for care of persons suffering from smoking-related illnesses.
- Smoking is a major risk factor for peripheral vascular disease. This disease is a narrowing of blood vessels that carry blood to the leg and arm muscles. If a blood clot blocks an already narrowed artery, then the result could be the damage or even loss of an arm or leg.

Sources: The American Lung Association, American Heart Association, and American Cancer Society

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Facts on Passive Smoking

- Involuntary smoking can cause lung cancer in nonsmokers.
- The children of parents who smoke have an increased frequency of hospitalization for brochitis and pneumonia during the first year of life when compared with the children of nonsmokers.
- The children of parents who smoke have an increased frequency of a variety of acute respiratory illnesses and infections, including chest illnesses before 2 years of age and physician-diagnosed brochitis, tracheitis, and laryngitis, when compared with the children of nonsmokers.
- Chronic cough and phlegm are more frequent in children whose parents smoke compared with children of nonsmokers.
- Undiluted sidestream smoke is characterized by significantly higher concentrations of many of the toxic and carcinogenic compounds found in mainstream smoke, including ammonia, volatile amines, volatile nitrosamines, certain nicotine decomposition products, and aromatic amines.
- Environmental tobacco smoke can be a substantial contributor to the level of indoor air pollution concentrations of respirable particles, benzene, acrolein, N-nitrosamine, pyrene, and carbon monoxide.
- Measured exposures to respirable suspended particulates are higher for nonsmokers who report exposure to environmental tobacco smoke.
- The main effects of the irritants present in environmental tobacco smoke occur in the conjunctive of the eyes and the mucous membranes of the nose, throat, and lower respiratory tract. These irritant effects are a frequent cause of complaints about poor air quality due to environmental tobacco smoke.
- Smoking policies may have multiple effects. In addition to reducing environmental tobacco smoke exposure, they may alter smoking behavior and public attitudes about tobacco use. Over time, this may contribute to a reduction in smoking in the United States. To the present, there has been relatively little systematic evaluation of policies restricting smoking in public places or at the workplace.
- On the basis of case reports and a small number of systematic studies, it appears that workplace smoking policies improve air quality, are met with good compliance, and are well accepted by both smokers and nonsmokers. Policies appear to be followed by a decrease in smokers' cigarette consumption at work and an increase in enrollment in company-sponsored smoking cessation programs.
- Laws restricting smoking in public places have been implemented with few problems and at little cost to State and local government.
- Public opinion polls document strong and growing support for restricting or banning smoking in a wide range of public places. Changes in attitudes about smoking in public appear to have preceded legislation, but the interrelationship of smoking attitudes, behavior, and legislation are complex.

Source: The U.S. Surgeon General's report, "The Health Consequences of Involuntary Smoking"

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

SECTION X.
ADDITIONAL RESOURCES

Information, materials and technical assistance can be obtained from the Texas Office of Smoking and Health (1-800-345-8647) or your local chapters of the American Lung Association, American Heart Association, and American Cancer Society.

The Directory of Smoking Resources and Contacts in Texas is published annually by the Texas Office of Smoking and Health. This community resource directory lists organizations who provide tobacco information, cessation programs, school materials, and a variety of services across Texas. To obtain a copy call toll-free 1-800-345-8647.

Rebecca Herron of the American Lung Association of Texas (1-512-343-0502) and June Ferris of Texas Office of Smoking and Health can provide additional information and assistance.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

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AMERICAN LUNG ASSOCIATION OF TEXAS
3520 EXECUTIVE CENTER DRIVE, SUITE G-100
AUSTIN, TEXAS 78731-1606
512/343-0502
1-800-252-LUNG

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

TEXAS OFFICE OF SMOKING AND HEALTH
%Texas Department of Health
1100 W. 49th Street Austin, Texas 78756
Toll-Free 1/800/345-8647
In Austin 458-7402

The Texas Office of Smoking and Health, funded by the Texas Cancer Council, provides free information and materials for Texans on topics related to tobacco use. Listed below are pamphlets, brochures and booklets currently available from the Office of Smoking and Health. Please call toll-free 1/800/345-8647 to order.

Materials Currently Available

(1) Annual Cost of Cigarette Smoking in Texas, 1988
A report on the health care costs and deaths attributed to cigarette smoking (8 pages).

(2) Choosing a Program to Help You Quit Smoking
Questions to ask when selecting a cessation program (pamphlet).

(3) Cleaning Up Your Patient's Smile
A guide highlighting clinical opportunities available to dentists and their staff to reduce patient tobacco use (10 pages).

(4) Clearing the Air, Answers to Smoking in the Workplace
A comprehensive packet of information to assist employers in developing company nonsmoking policies, including the Surgeon General's Report on Involuntary Smoking, the Decision Maker's Guide to Reducing Smoking at the Worksite, and Smoking at the Workplace: The Changing Legal Situation (packet consists of 3 booklets and 2 fact sheets).

(5) Directory of Smoking Resources and Contacts in Texas
A listing from across the state of agencies, associations, medical facilities and private companies offering tobacco information assistance in quitting smoking, or reducing smoking in the community, updated each year (22 pages).

(6) A Fact Book on Smoking and Health
An excellent resource for facts dealing with the medical, social and economic aspects of cigarette smoking (43 pages).

(7) Guia para Dejar de Fumar (Guide to Quitting Smoking)
New from the National Cancer Institute, a beautifully illustrated cessation guide in Spanish (36 pages).

(continued on next page)

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

(8) A Guide for Quitting Smokeless Tobacco
A pamphlet containing tips on how to quit chewing and dipping.

(9) Nonsmoking Ordinance Guide
A guide to assist communities in developing local ordinances designed to limit smoking in public places (66 pages).

(10) Office of Smoking and Health, For Smoking and Tobacco Information
A pamphlet identifying the goals and services of the Office. 8-1/2" x 11" poster also available.

(11) Project Comply Guide
A guide to assist communities in preventing the sale of tobacco products to minors (16 pages).

(12) School Poster Series
8-1/2" x 11" posters designed for upper elementary and high schools. 3 designs in the series.

(13) Staying Trim Without Tobacco
A pamphlet containing tips for controlling weight when quitting smoking.

(14) Thank You For Not Smoking sign, 8-1/2 x 11

(15) Tobacco: If You Use You Lose
A teacher's guide for 5th and 6th graders designed to enable students to make independent and healthy decisions regarding tobacco use (contains 3 lessons, 23 pages).

December, 1988

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

APPENDIX G

SEGMENTED CIGARETTE MARKET TRENDS

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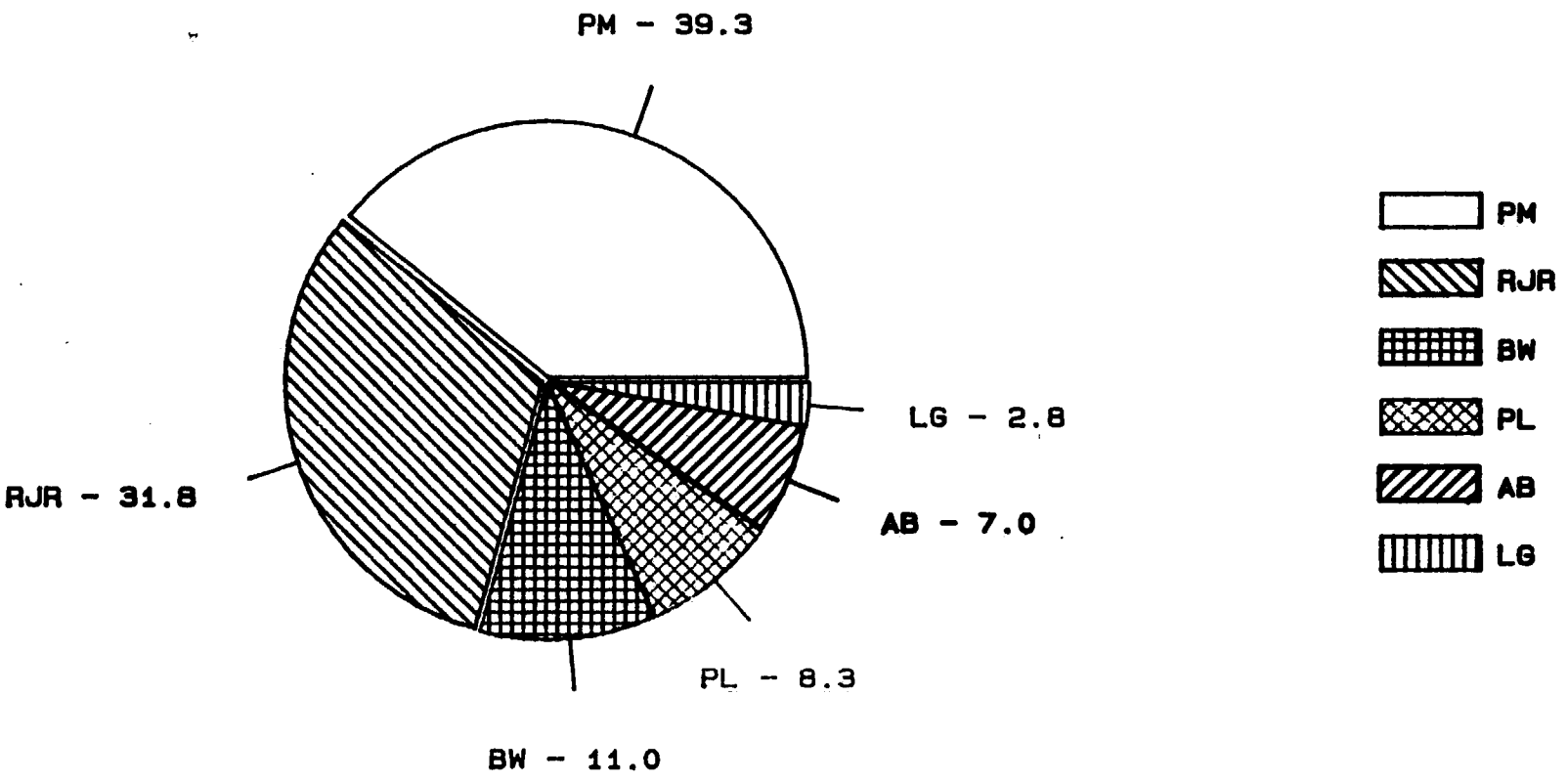
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Total Domestic Market
1988 Market Share



1988 Market Share
Total Volume = 558.12 Billion Units

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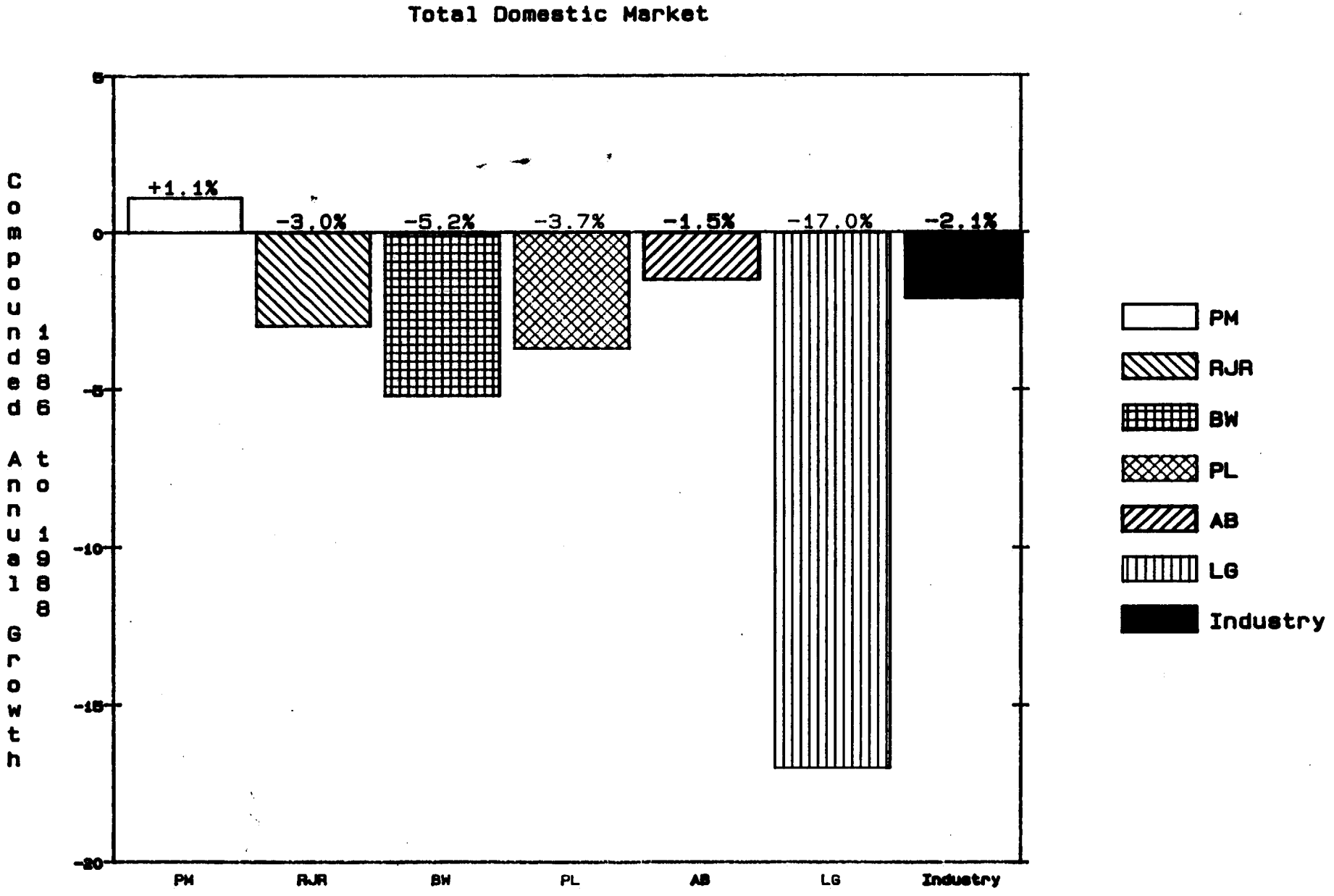
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000



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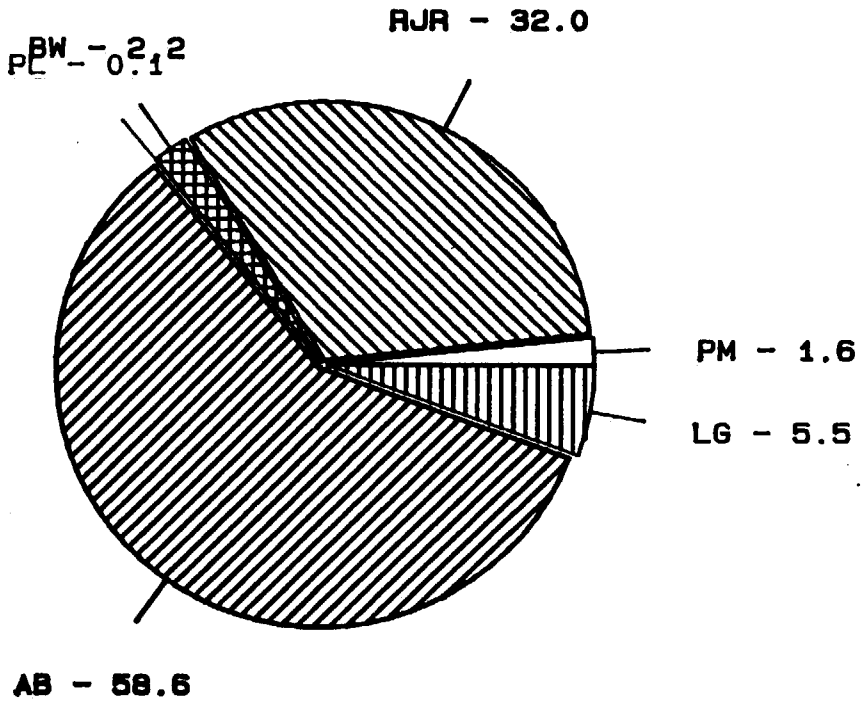
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Non-Filter Segment
1988 Market Share



1988 Market Share (4.5%)
Total Volume = 25.3 Billion Units

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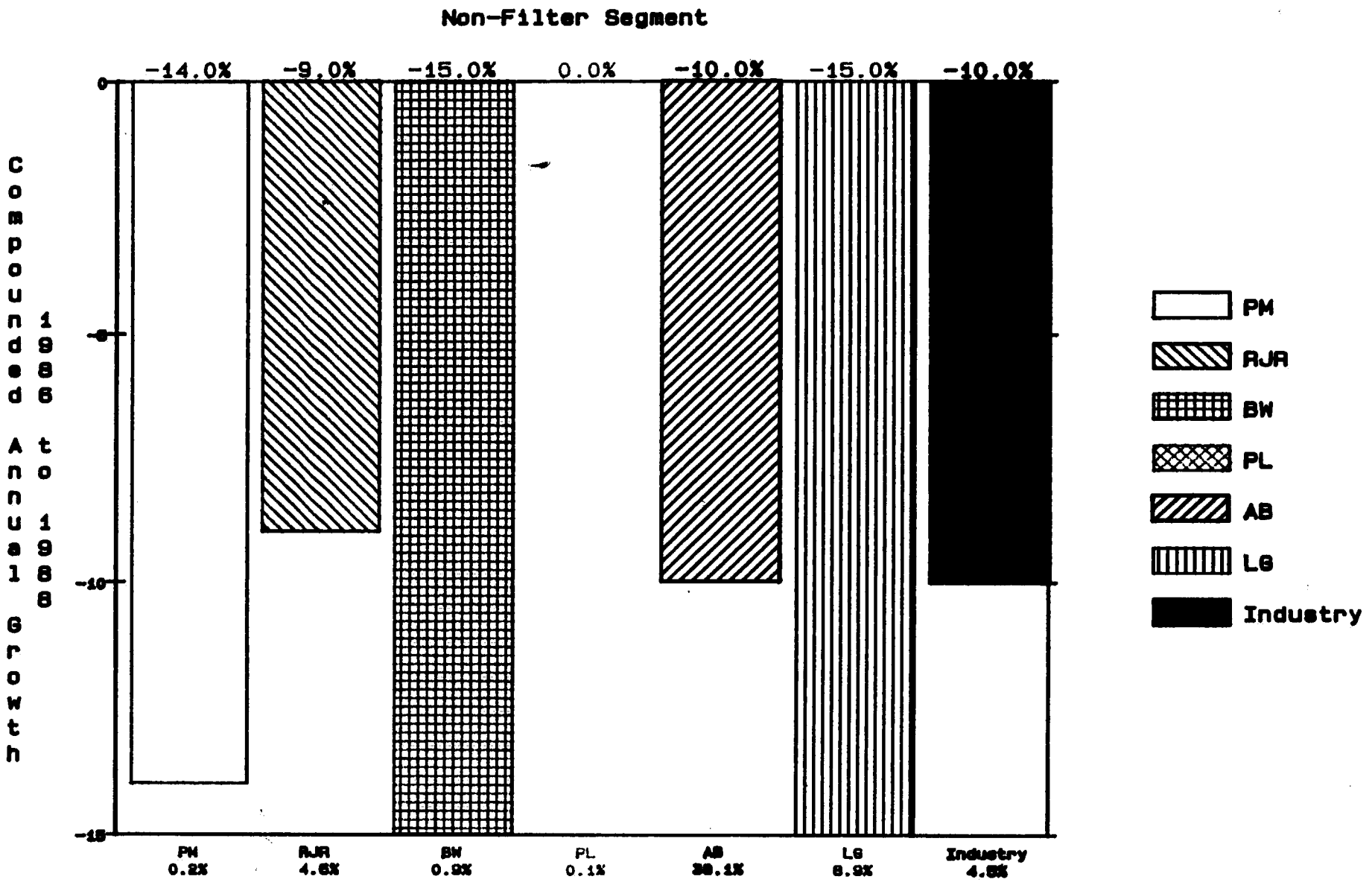
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000



% = Segment Volume / Co Total Volume

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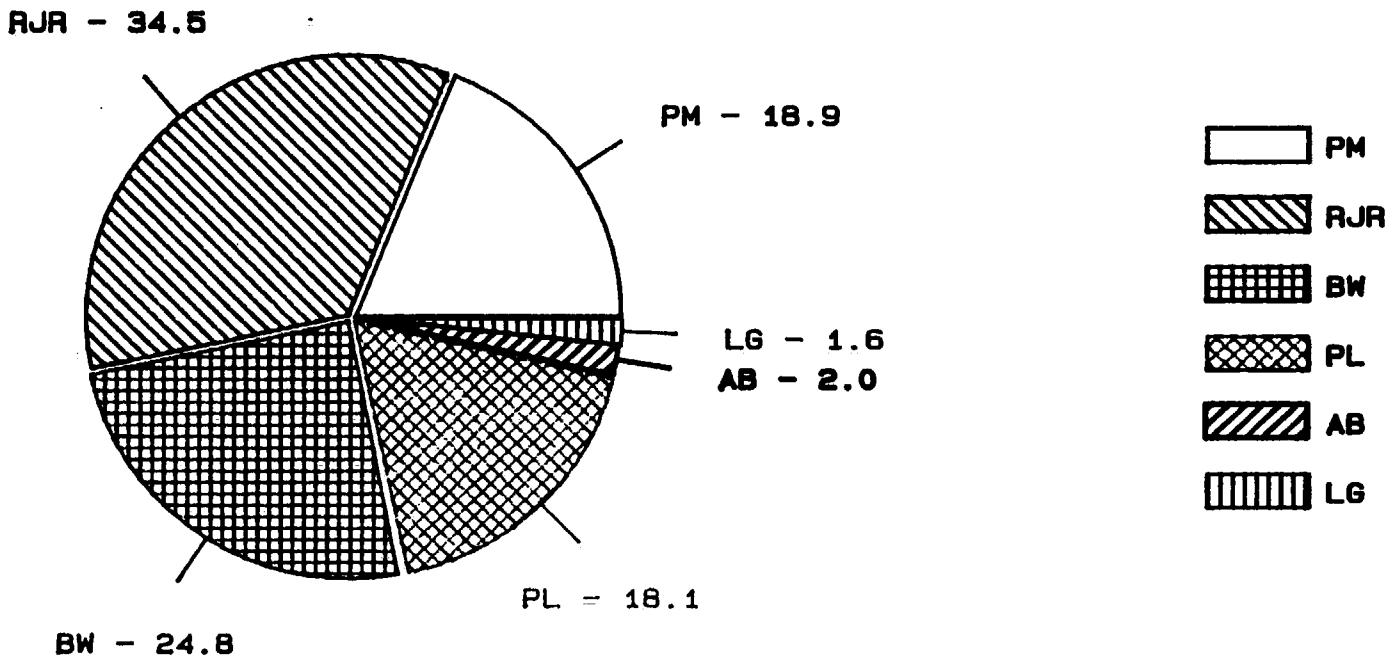
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Menthol Segment
1988 Market Share



1988 Market Share (26.9%)
Total Volume = 150.4 Billion Units

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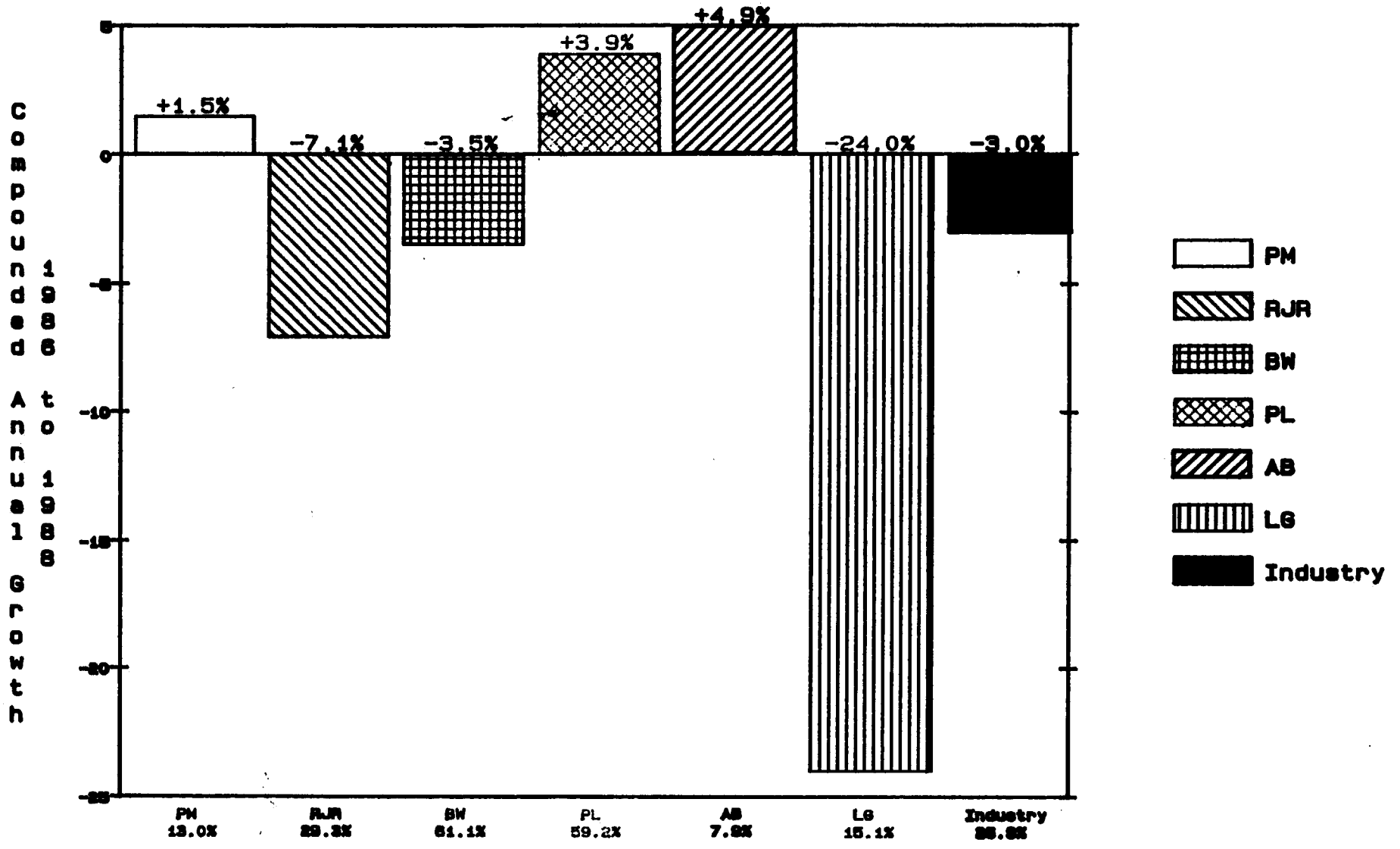
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Menthol Segment



% = Segment Volume / Co Total Volume

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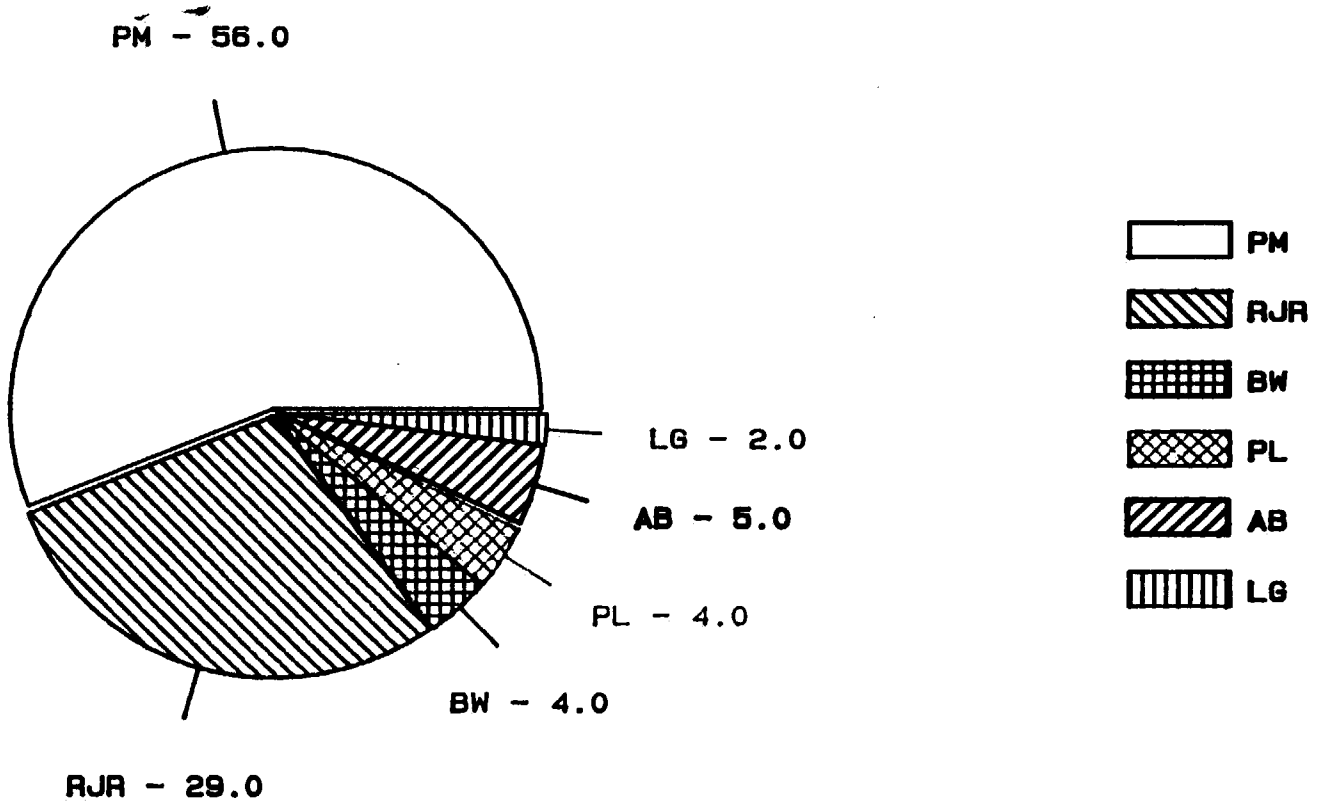
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Full Flavored Filter Segment
1988 Market Share



1988 Market Share (28.1%)
Total Volume - 156.8 Billion Units

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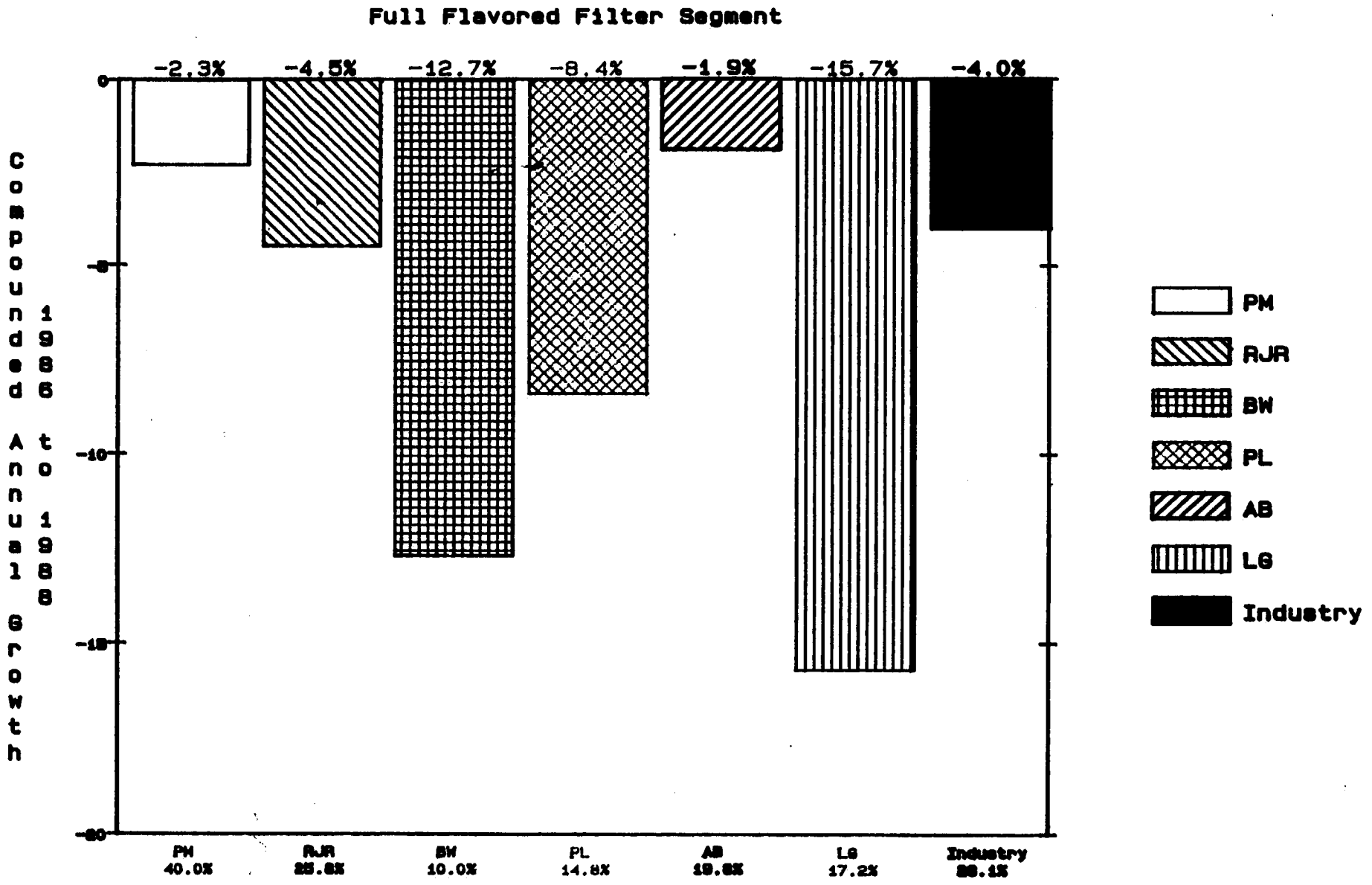
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000



% = Segment Volume / Co Total Volume

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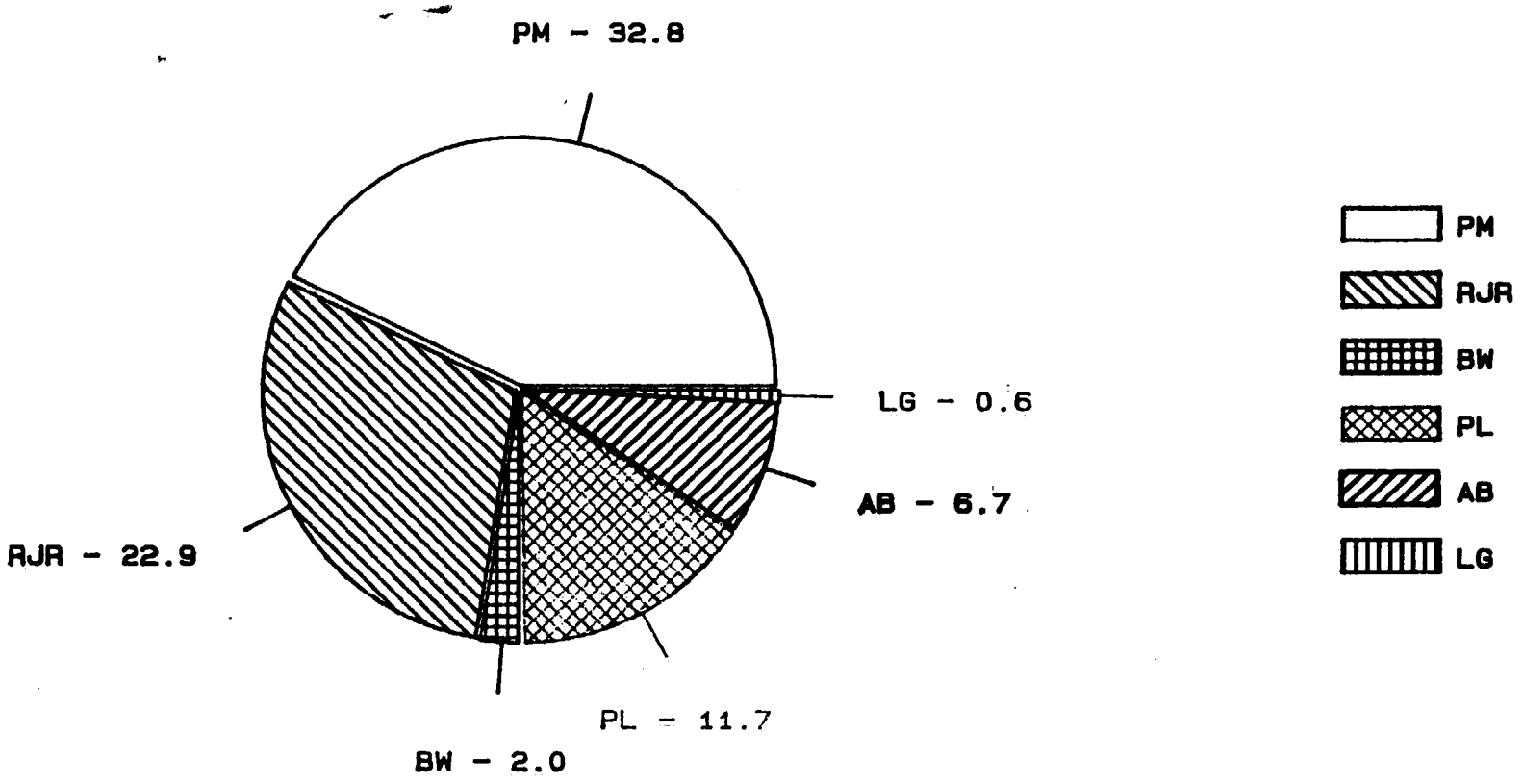
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Light Filter Segment
1988 Market Share

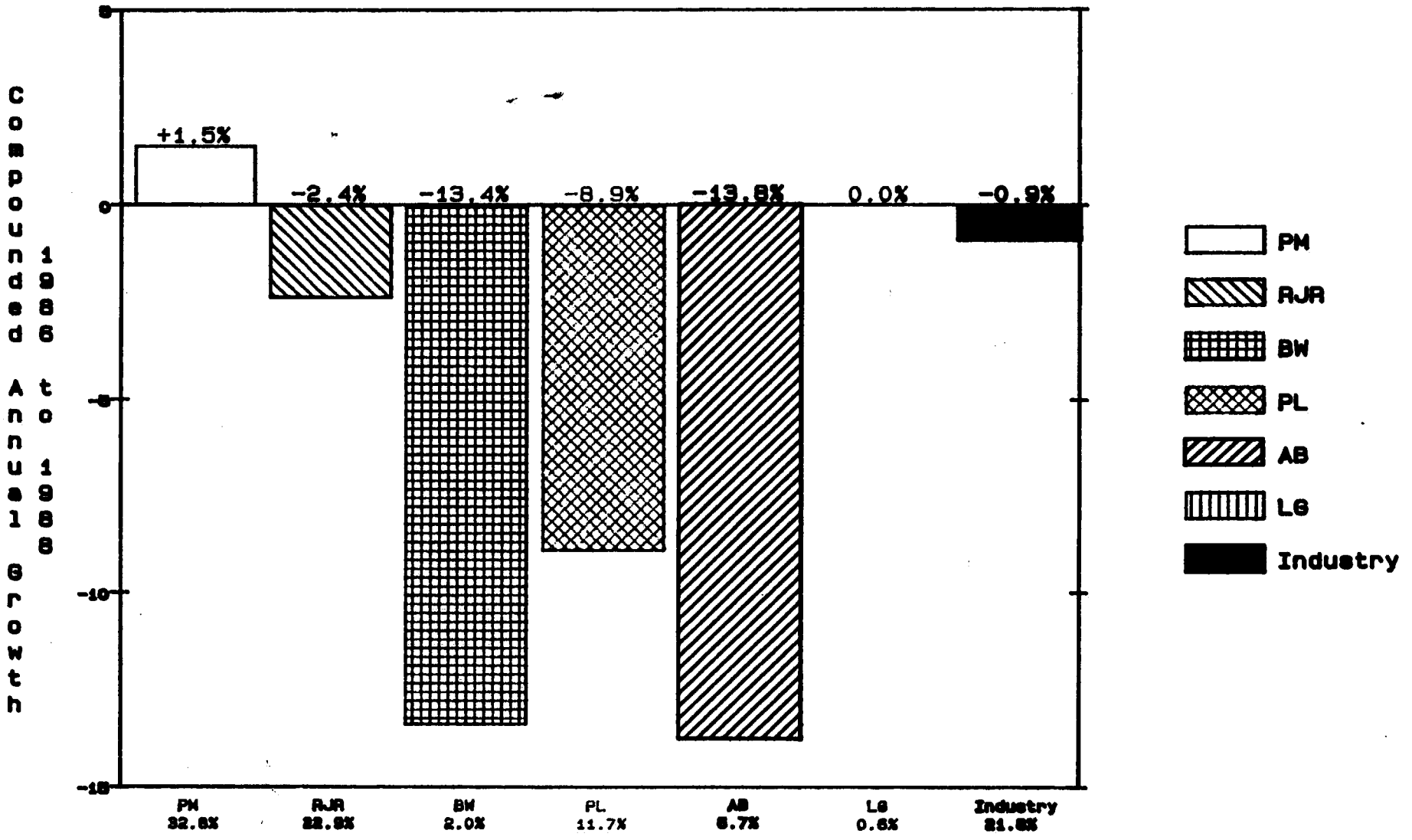


1988 Market Share (21.8%)
Total Volume = 121.9 Billion Units

2021391292

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Light Filter Segment

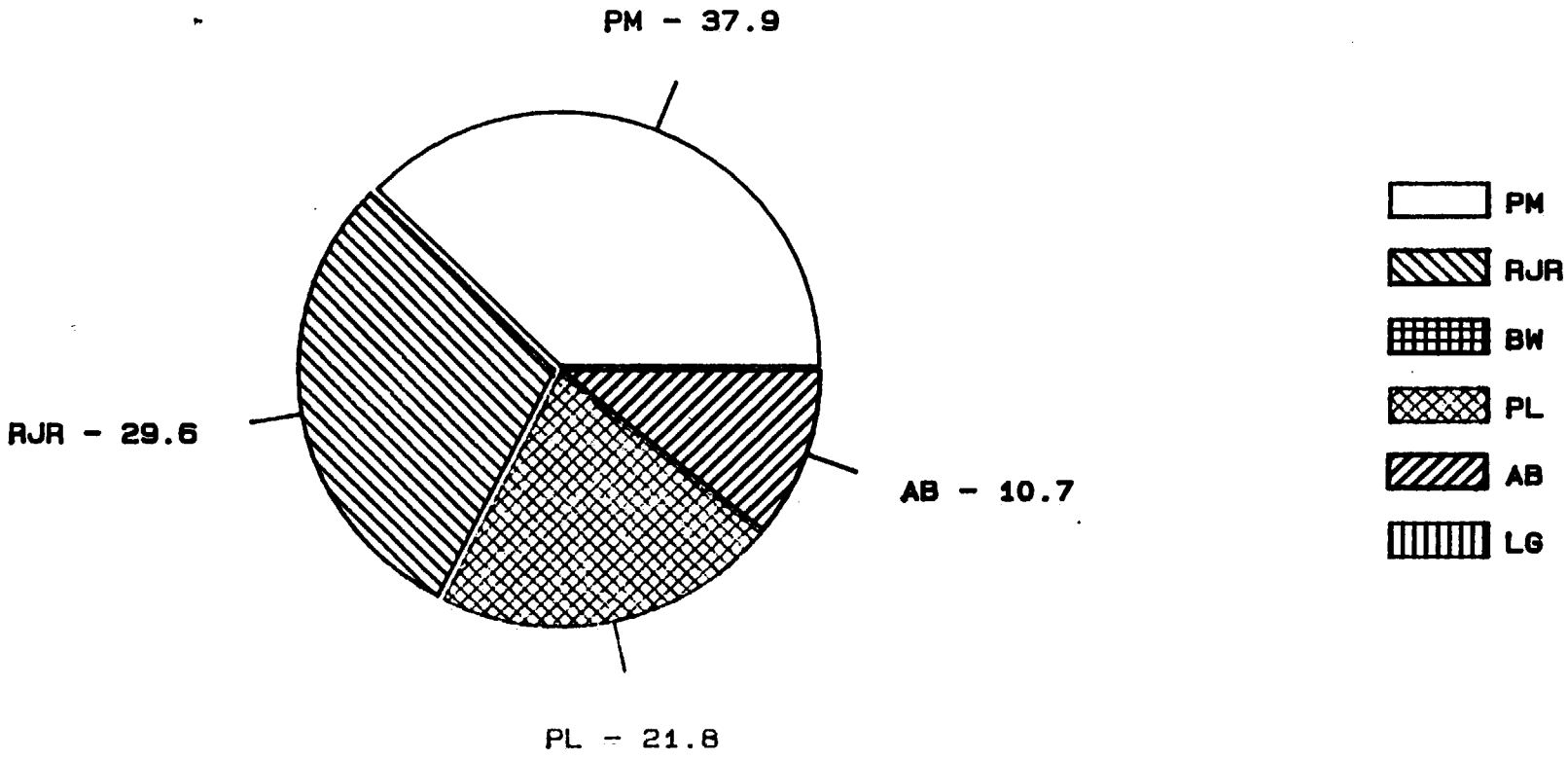


% = Segment Volume / Co Total Volume

2021391293

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Ultra Lights Filter Segment
1988 Market Share

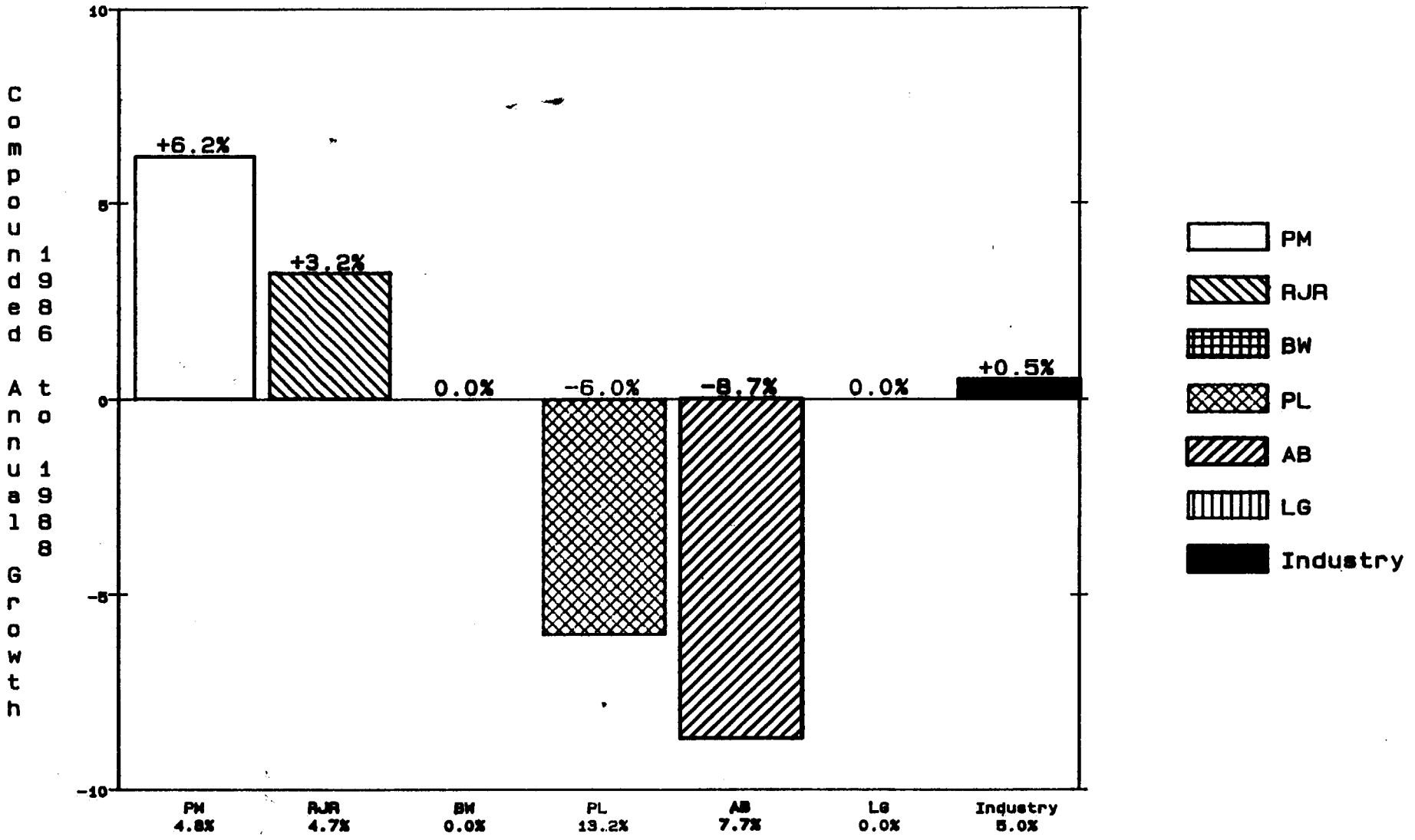


1988 Market Share (5.0%)
Total Volume = 28.0 Billion Units

2021391294

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Ultra Lights Filter Segment

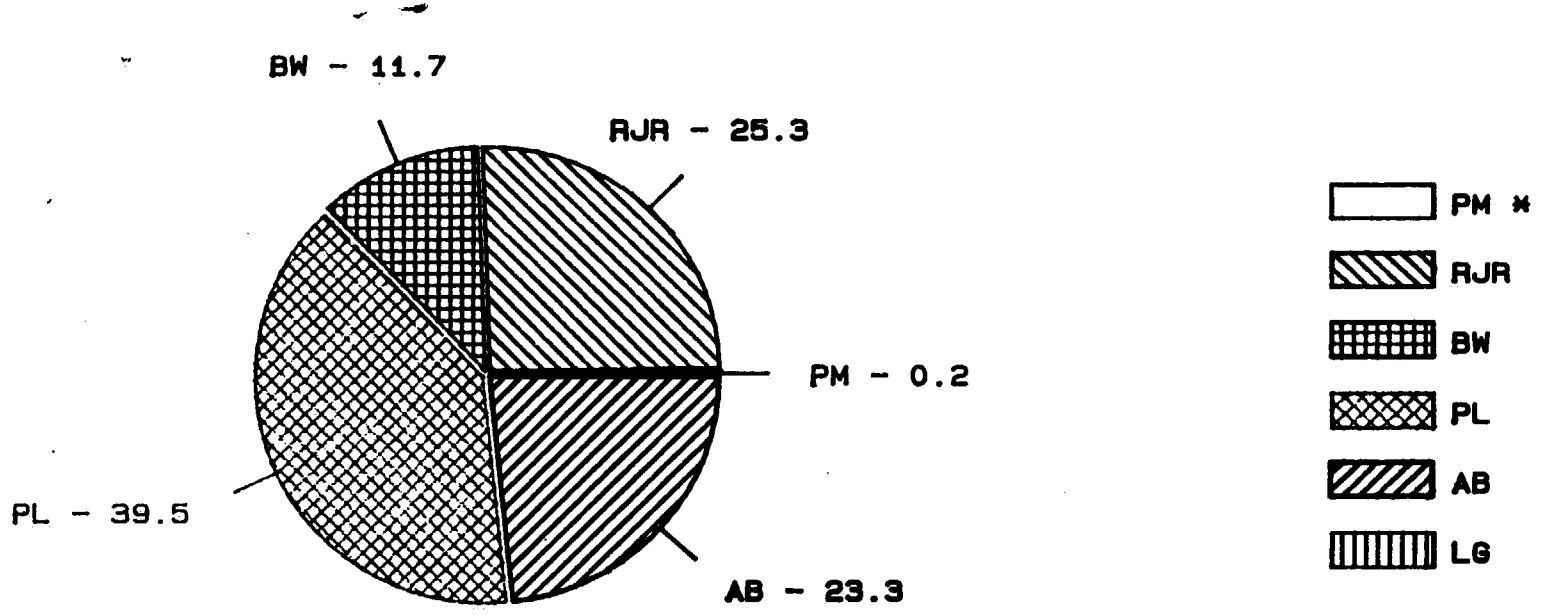


% = Segment Volume / Co Total Volume

2021391295

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Ultra Low Tar Filter Segment
1988 Market Share



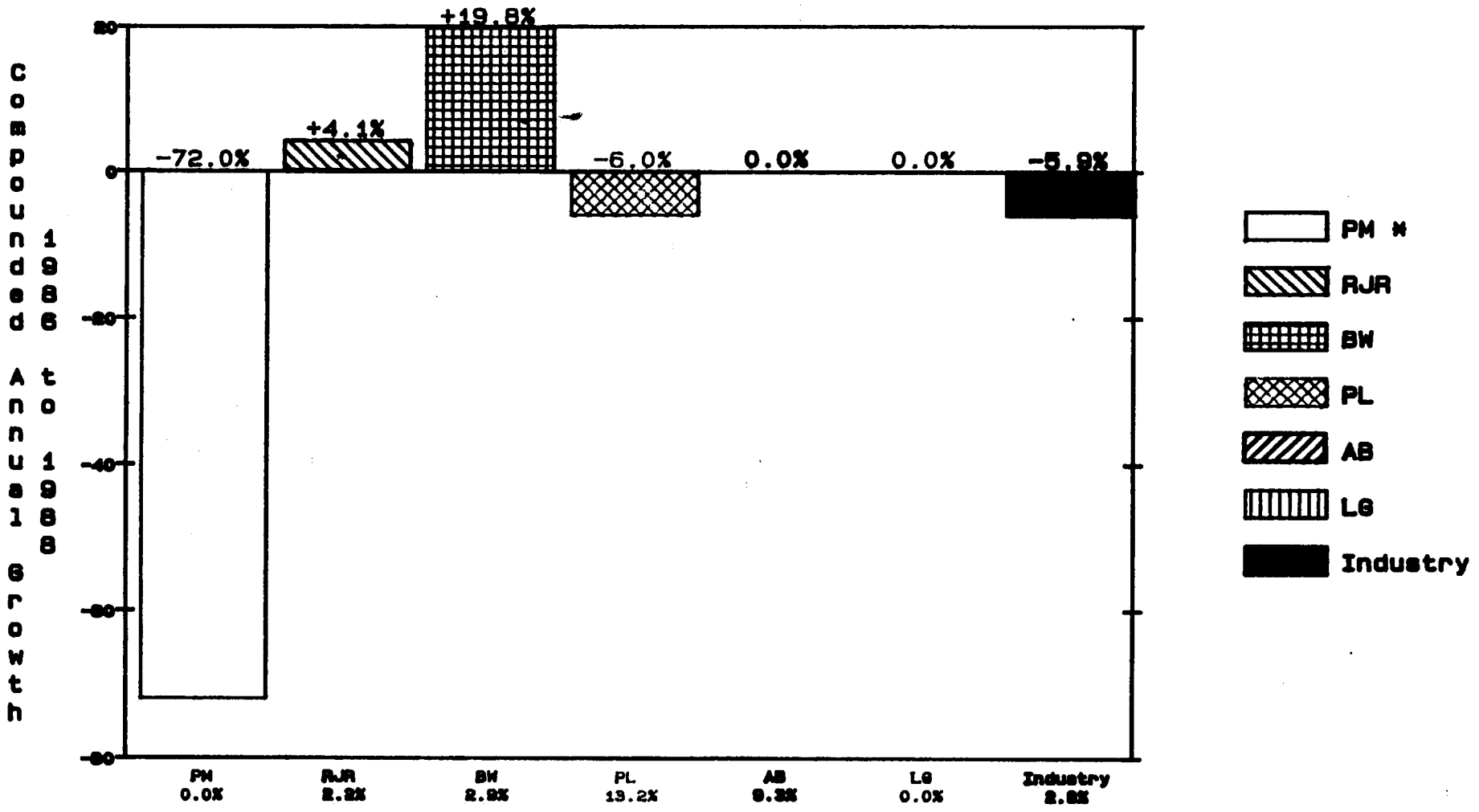
1988 Market Share (2.8%)
Total Volume = 15.4 Billion Units

* Cambridge < 0.5 discontinued

2021391296

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Ultra Low Tar Filter Segment



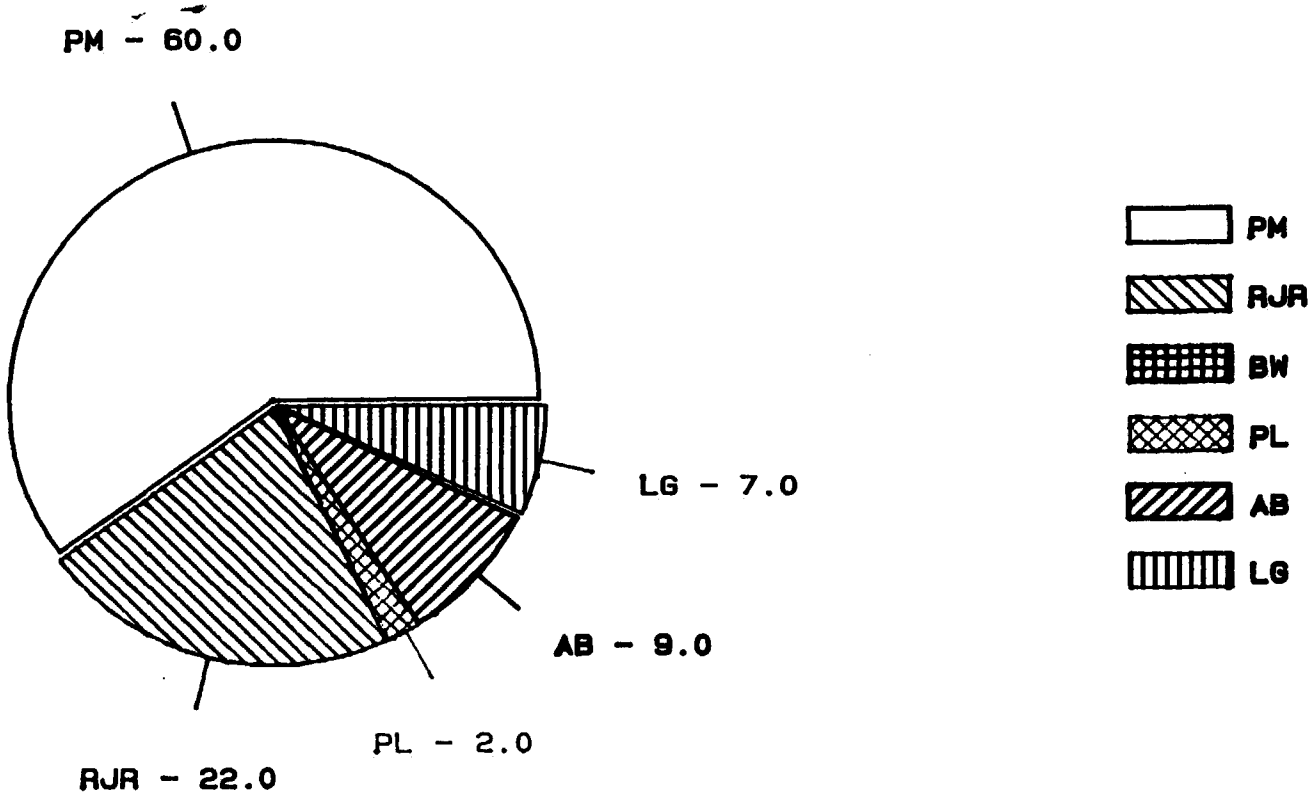
% = Segment Volume / Co Total Volume

* Cambridge < 0.5 discontinued

2021391297

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Slims / 120's Segment
1988 Market Share

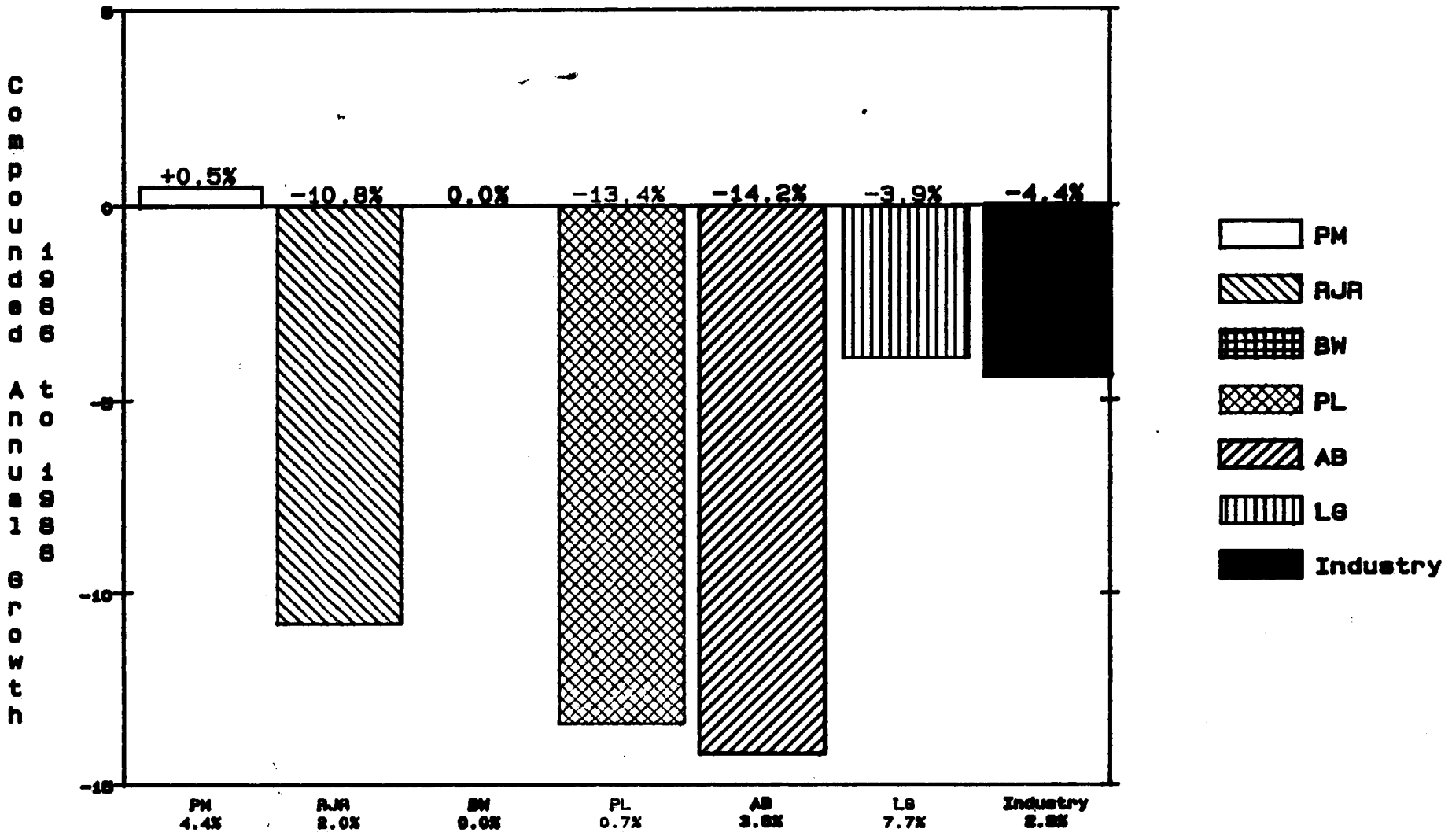


1988 Market Share (2.9%)
Total Volume = 16.1 Billion Units

2021391298

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Slims / 120's Segment
1988 Market Share

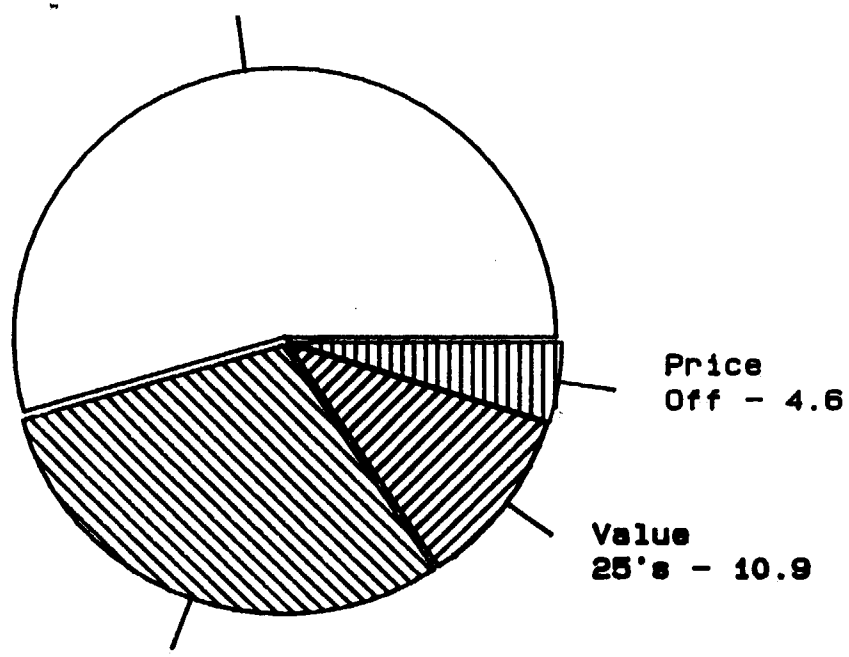


% = Segment Volume / Co Total Volume

2021391299

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Price / Value by Type

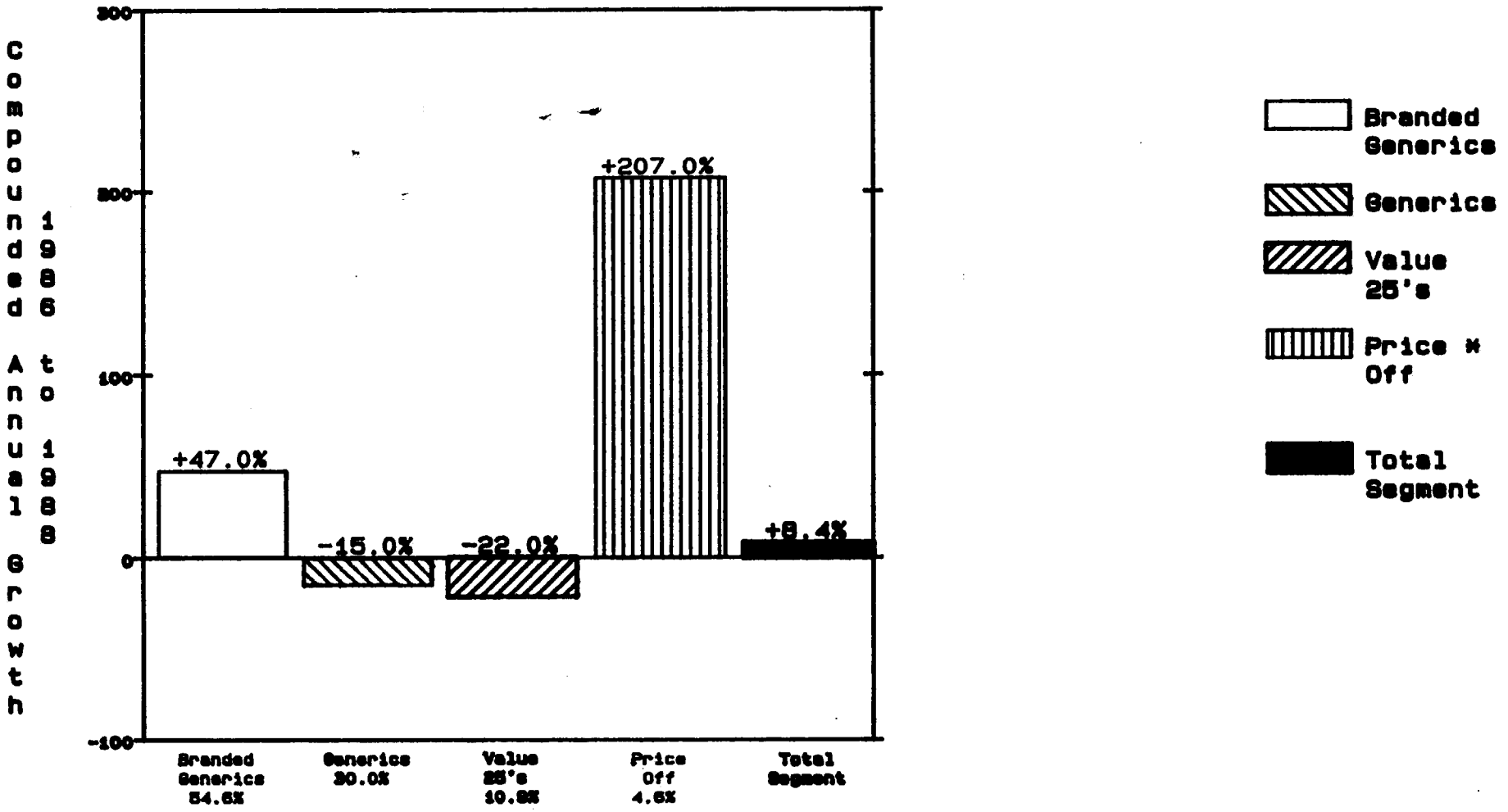


1988 Market Share (11.0%)
Total Volume = 61.4 Billion Units

2021391300

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Price / Value by Type



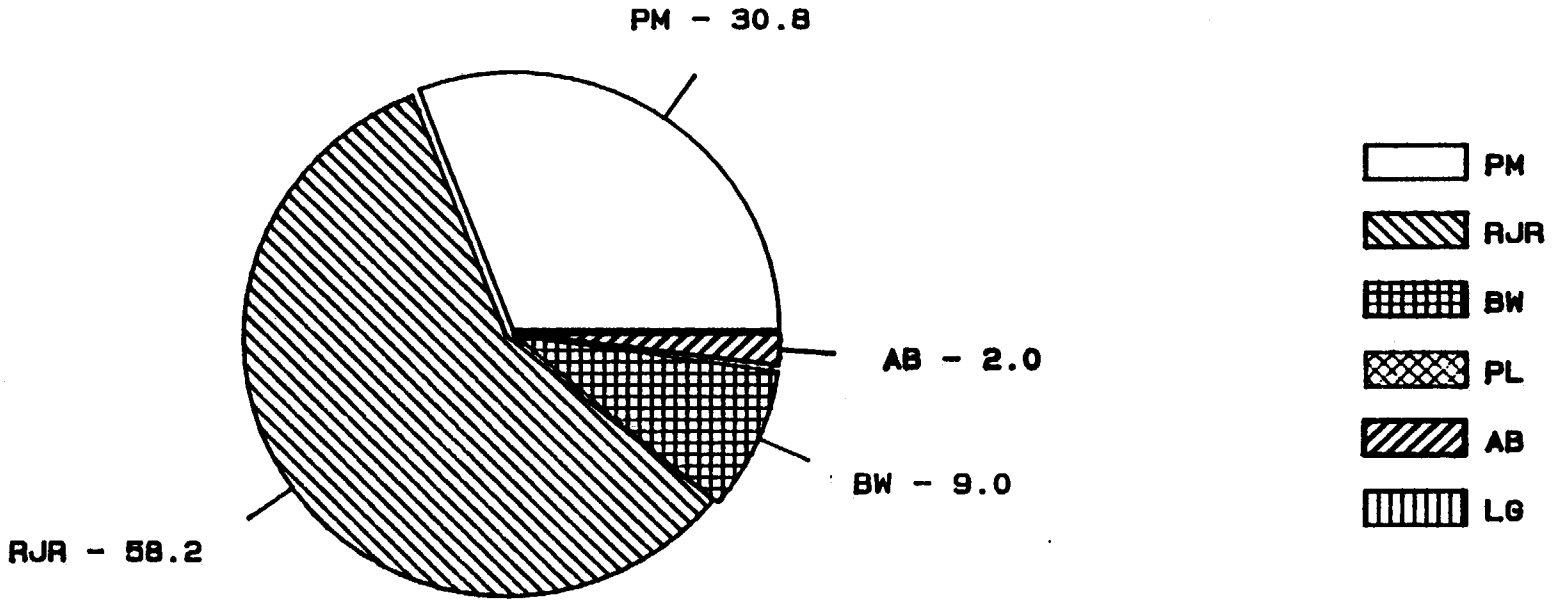
% = Segment Volume / Co Total Volume

* Figure For 1 Year Only

20213913O1

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Branded Generics
1988 Market Share

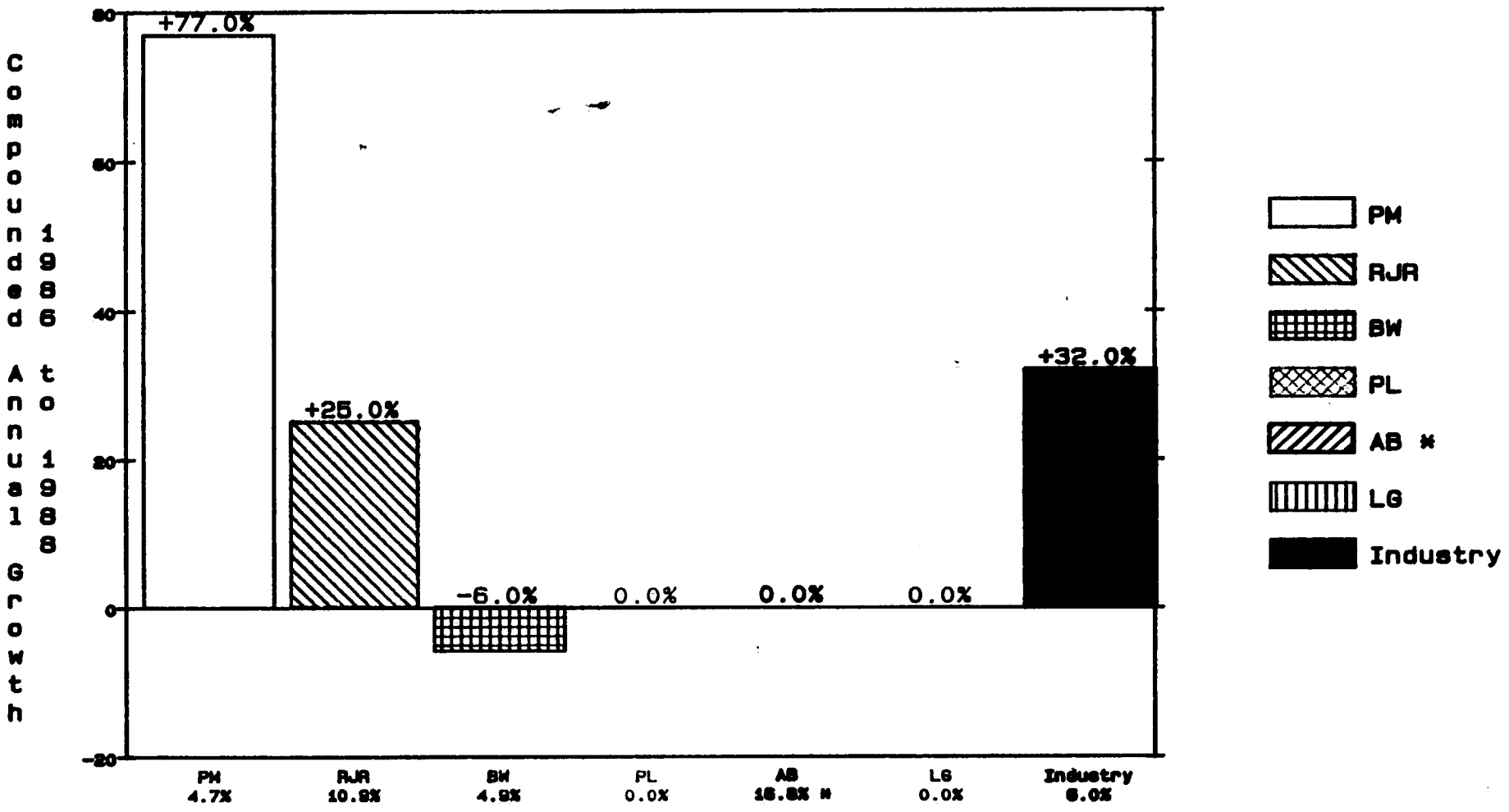


1988 Market Share (6.0%)
Total Volume = 33.2 Billion Units

2021391302

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Branded Generics



% = Segment Volume / Co Total Volume

* American Lights Introduced in 1988

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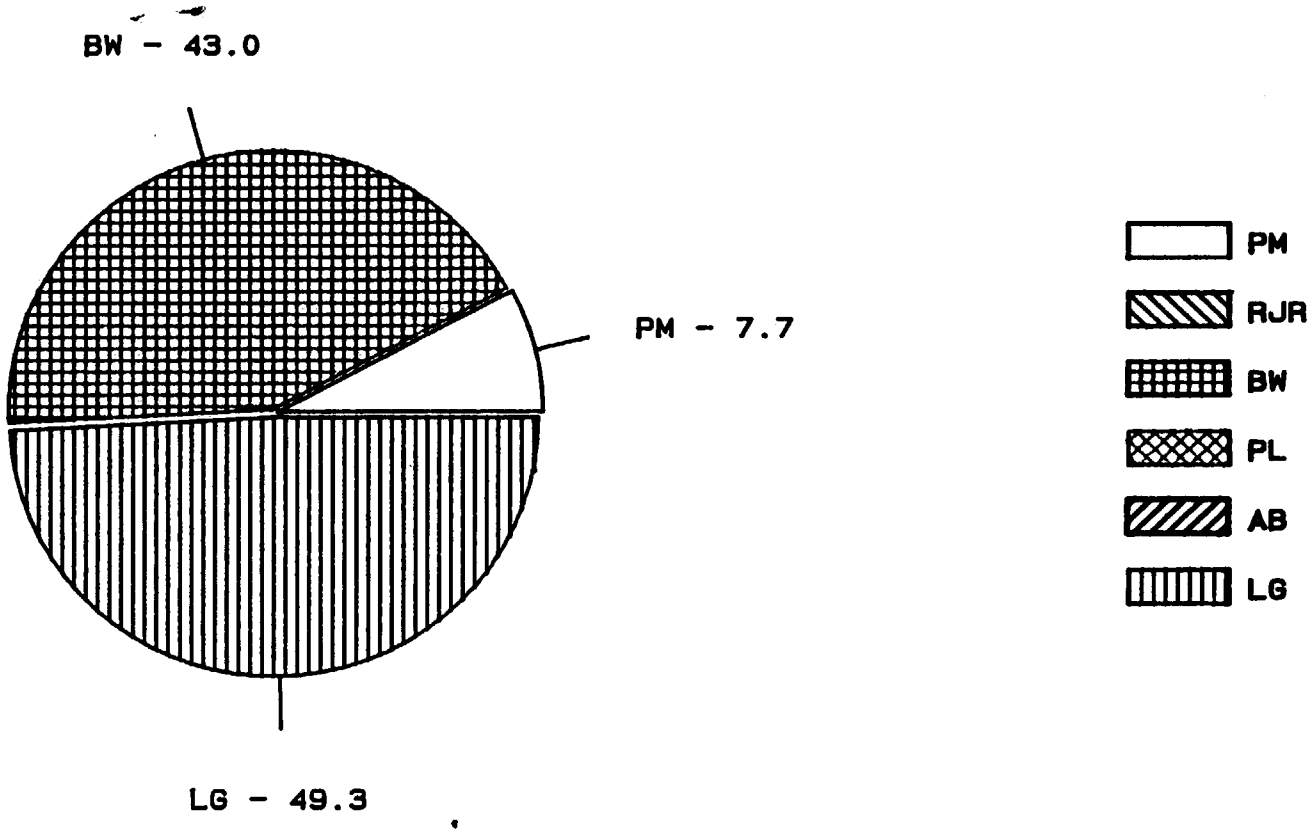
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Generic Segment
1988 Market Share

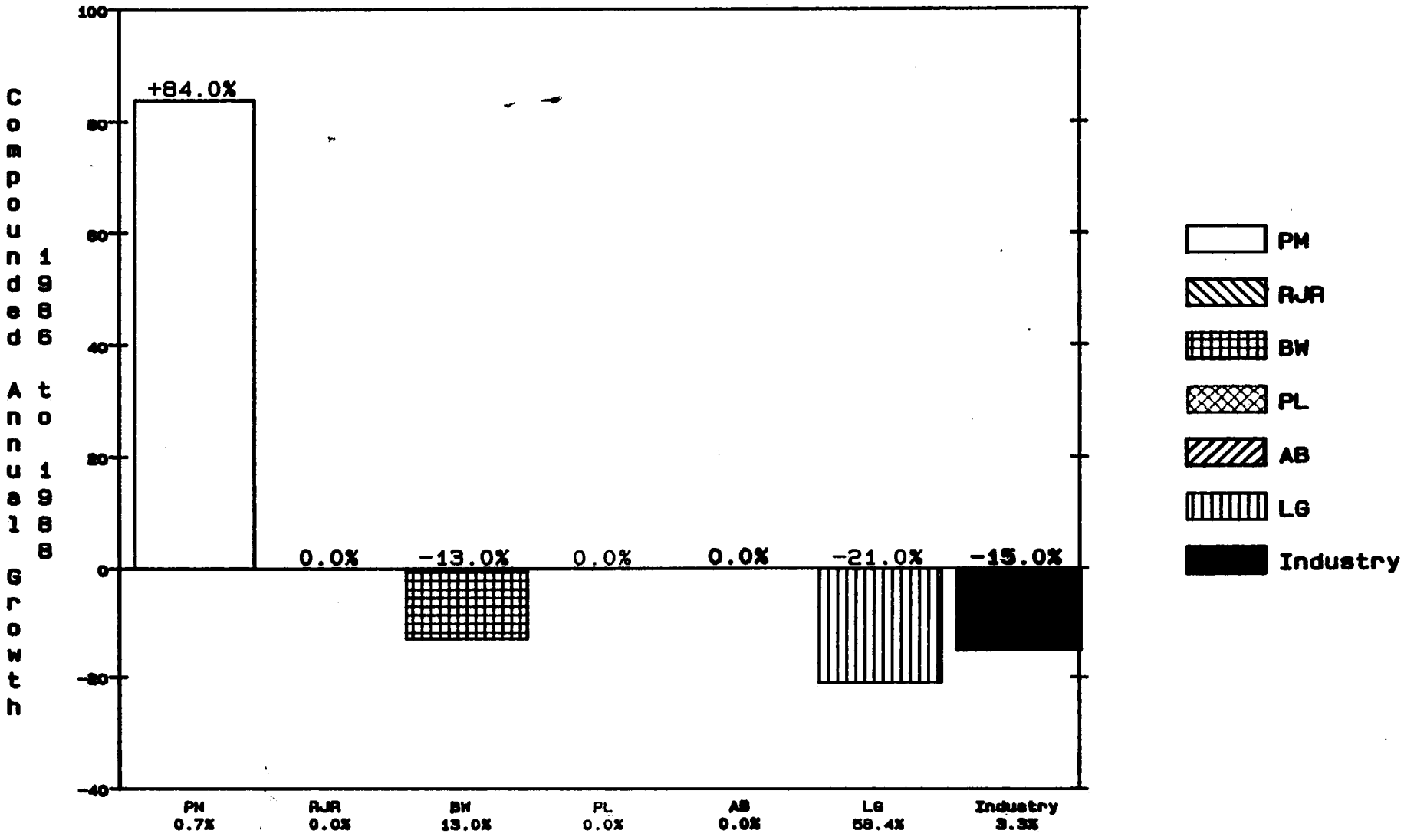


1988 Market Share (3.3%)
Total Volume = 18.5 Billion Units

2021391304

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Generic Segment



% = Segment Volume / Co Total Volume

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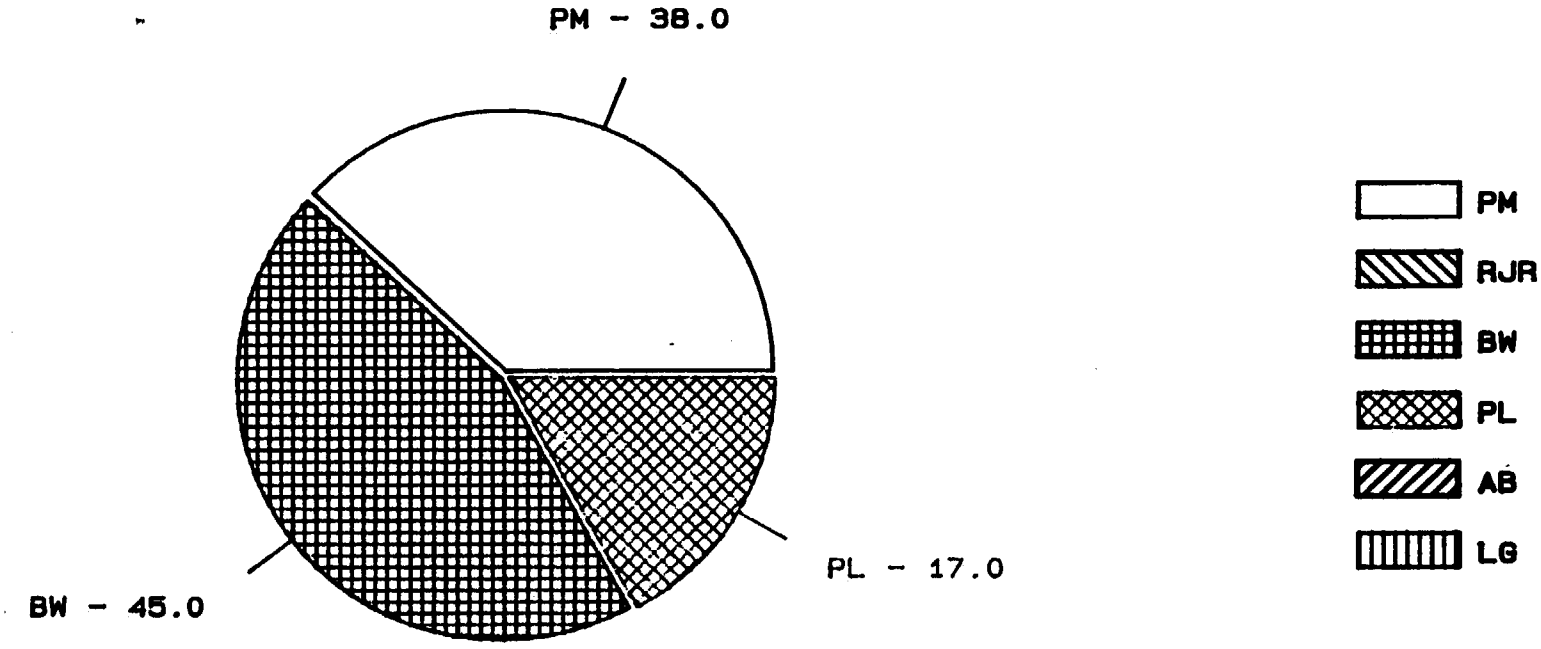
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

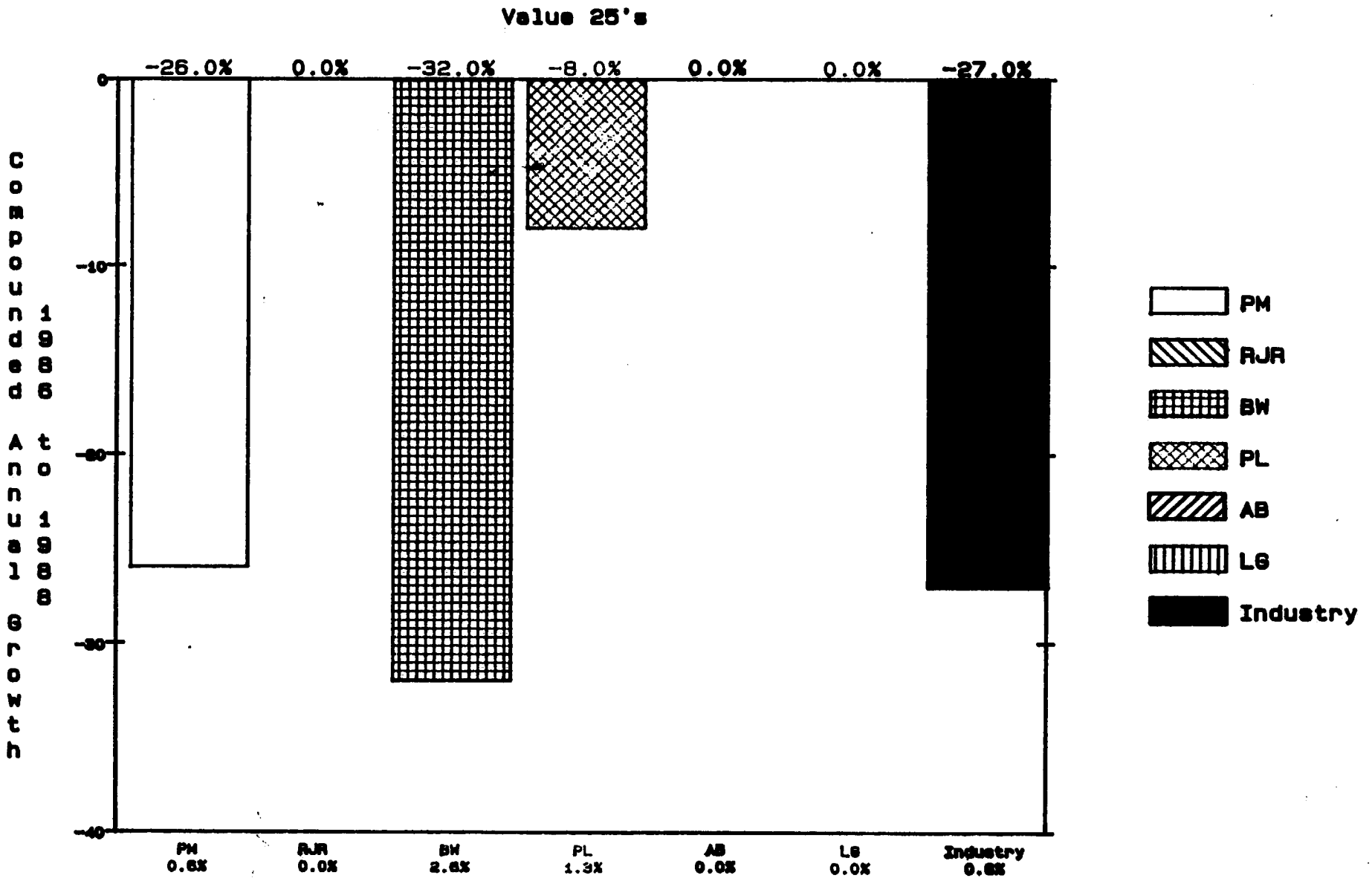
Value 25's
1988 Market Share



1988 Market Share (0.6%)
Total Volume = 3.6 Billion Units

2021391306

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

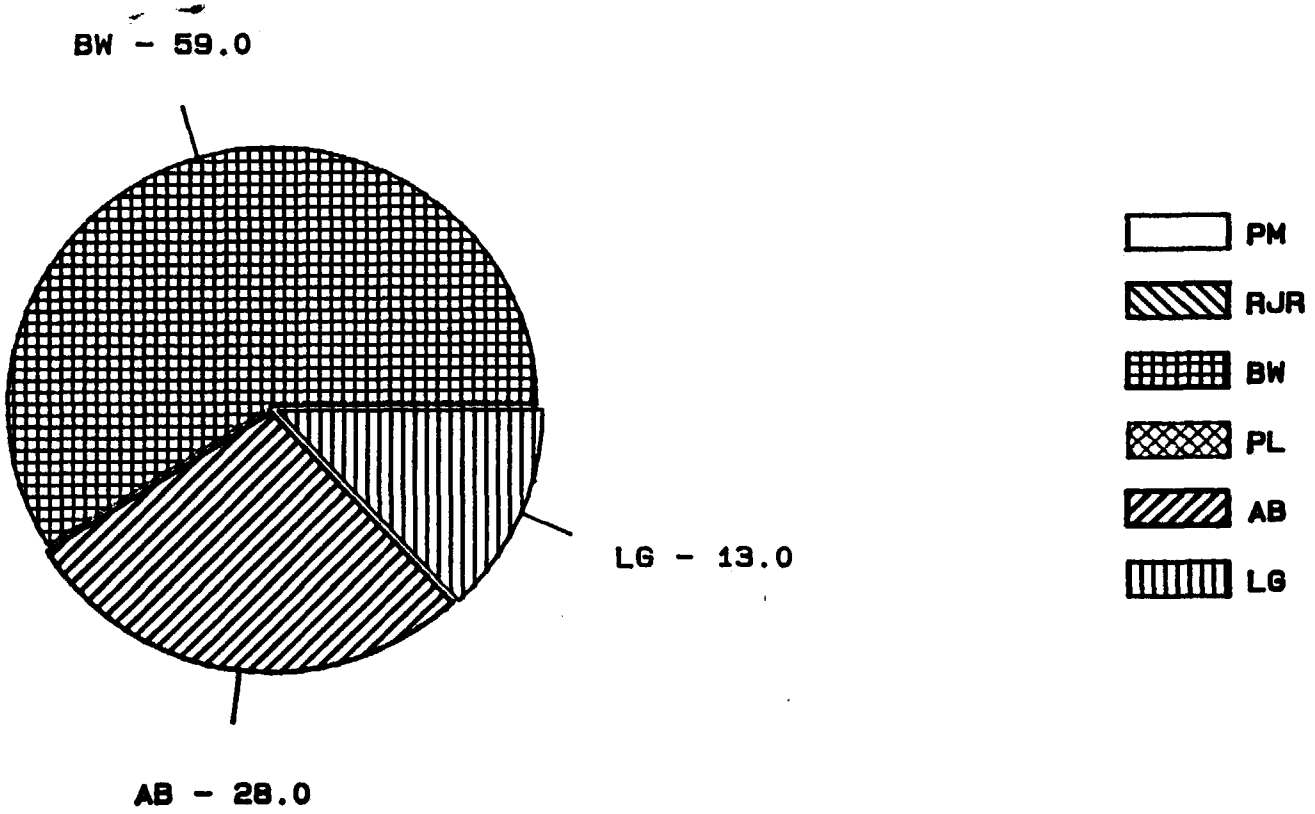


% = Segment Volume / Co Total Volume

2021391307

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Price - Off (Coupon)
1988 Market Share



1988 Market Share (1.9%)
Total Volume = 10.9 Billion Units

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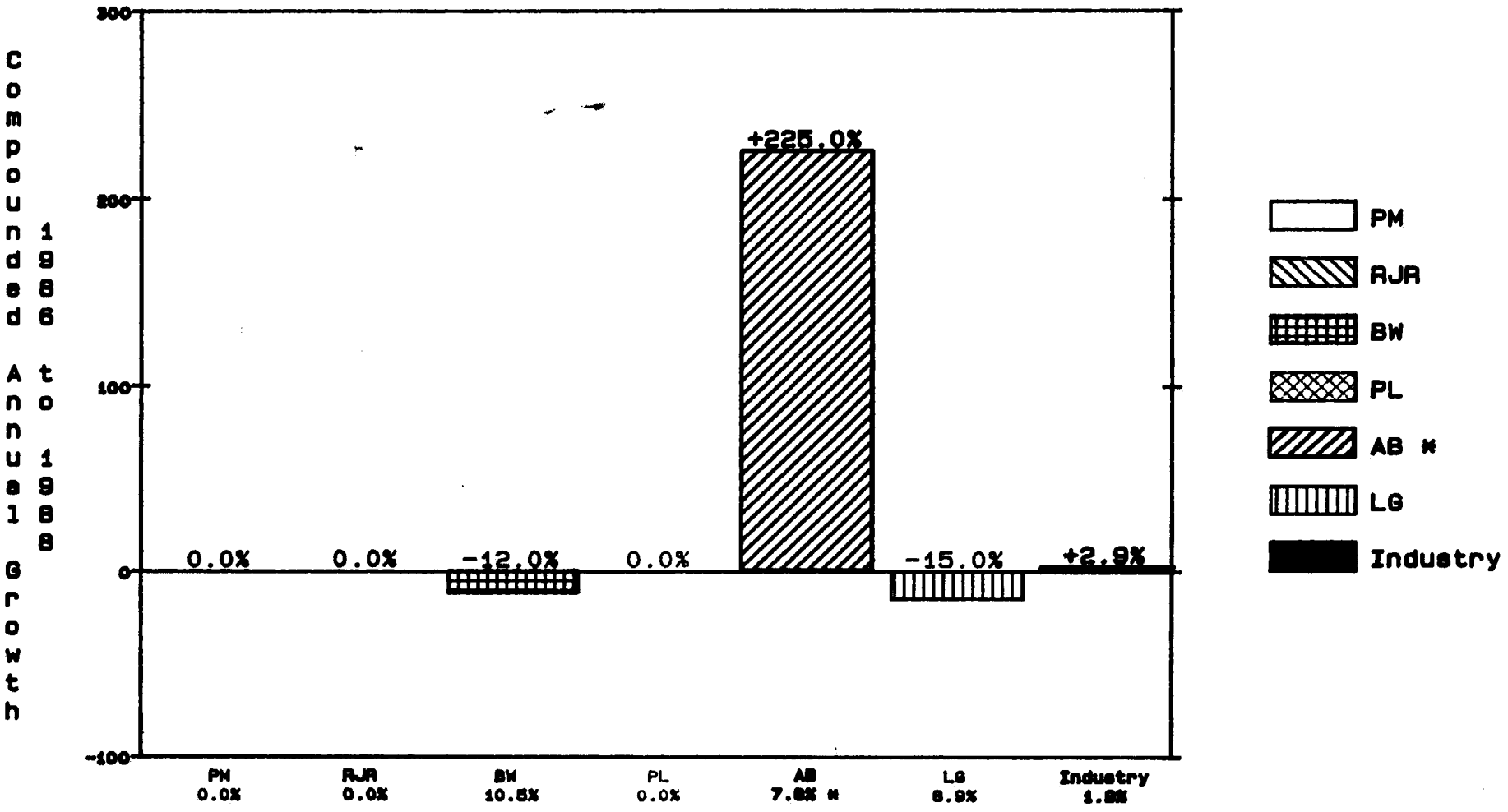
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Price - Off (Coupon)



% = Segment Volume / Co Total Volume

* Malibu (Price-Off) Introduced in 1987

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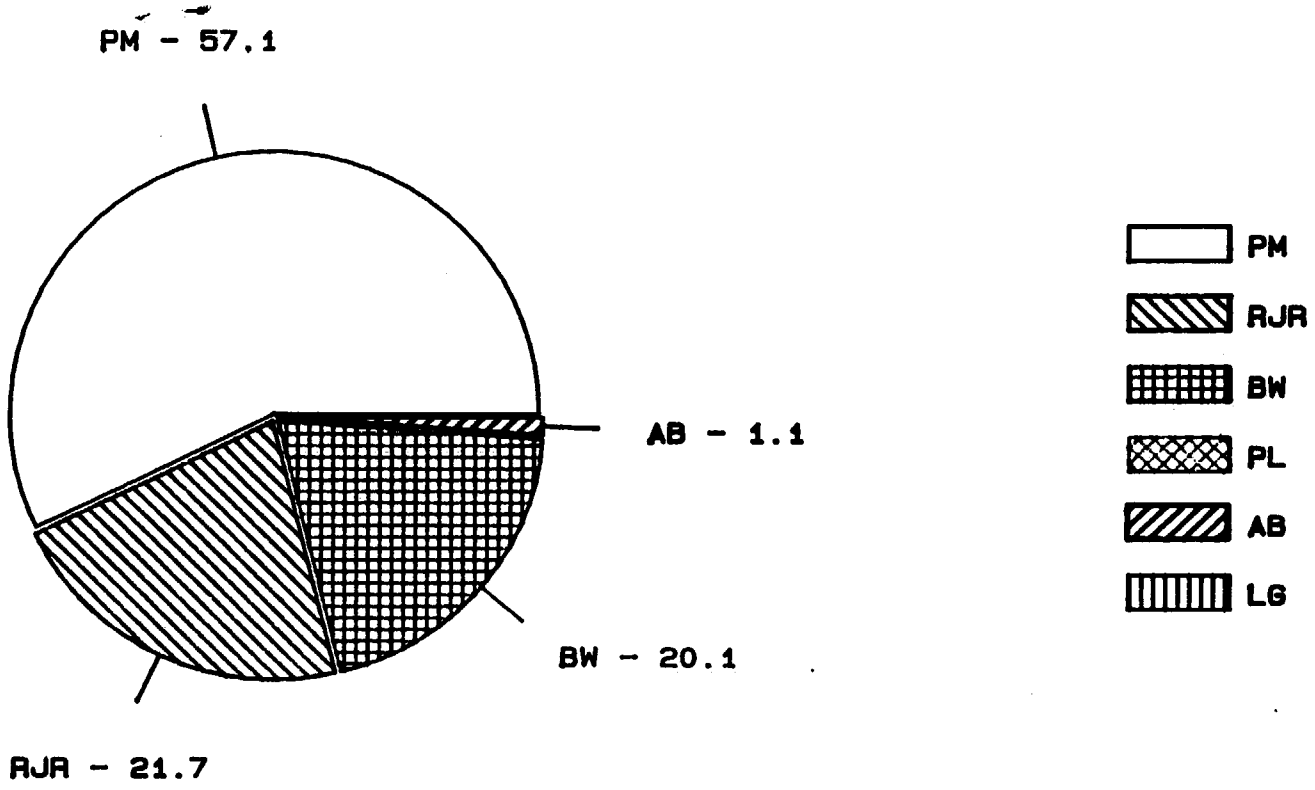
Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

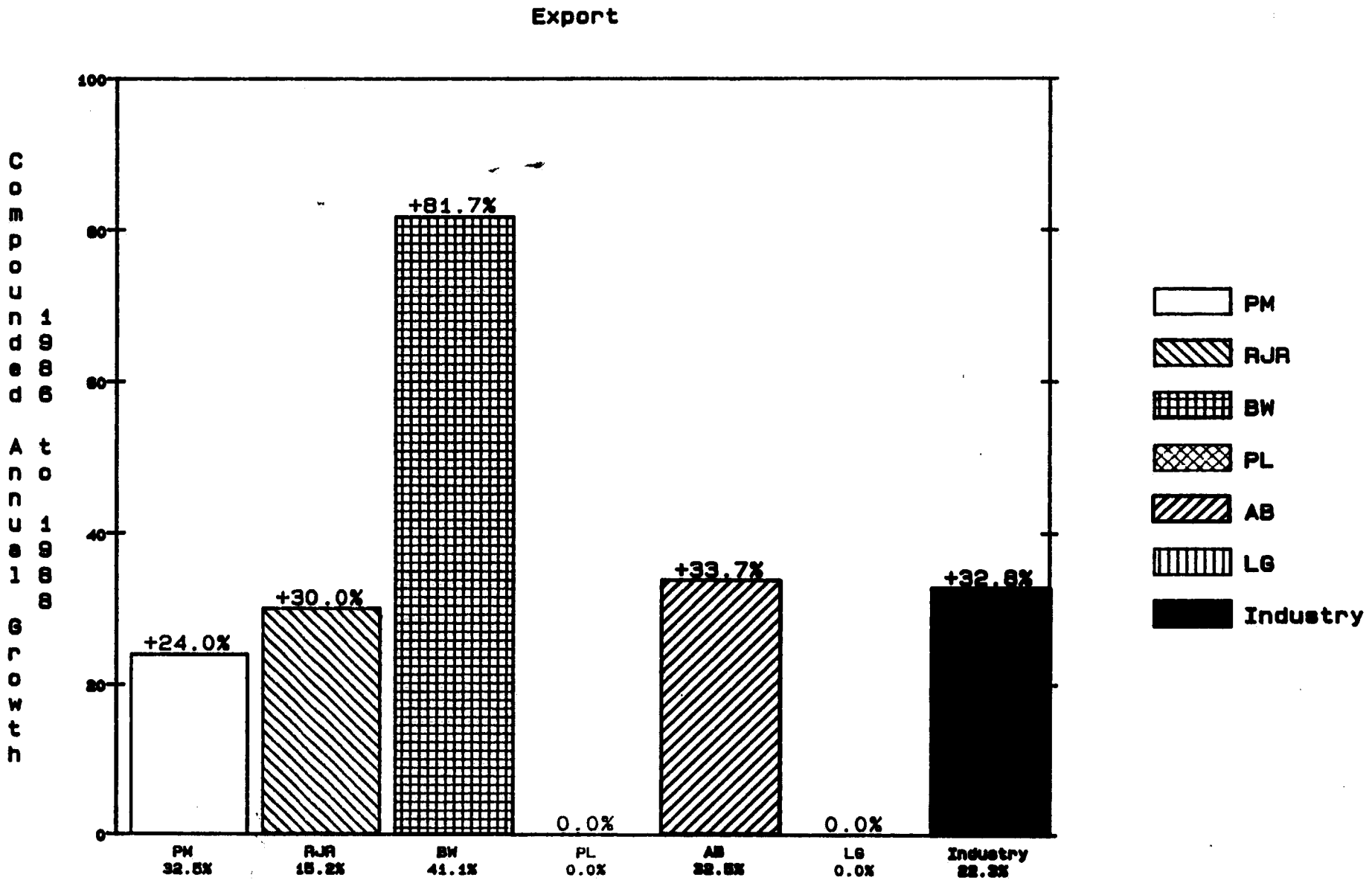
Export
1988 Market Share



1988 Export / Domestic (22.3%)
Total Volume - 124.69 Billion Units

2021391310

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000



% = Segment Volume / Co Total Volume

2021391311

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

2021391312

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

APPENDIX H

ENVIRONMENTAL ISSUES

20213913 13

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

PHILIP MORRIS, U. S. A.

I N T E R - O F F I C E C O R R E S P O N D E N C E

Richmond, Virginia

To: . Distribution Date: October 5, 1989

From: . S. H. Pouliot

Subject: . Five Year Plans and Environmental Issues

Since the Five Year Plan is currently under review, several groups have requested information regarding environmental issues and trends affecting Philip Morris. For your information, we have prepared the attached documents summarizing current and upcoming projects, as well as general trends and their impact on our operations. The Employee and Environmental Protection (EEP) staff routinely tracks these issues and trends, and will continue to prepare and coordinate action plans as required.

If you have any questions, please feel free to contact me (X4460) or Joe Tenhet (X2946).

SHP/rsm

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MAJOR PM ENVIRONMENTAL PROJECTS

Current and Upcoming

Park 500 Wastewater Plant upgrade for increased capacity and phosphorous removal.

Upgrade of air pollution control equipment and replacement of printing press at Colonial Heights Packaging.

Installation of scrubbers at MC and Stockton Street to reduce the emission of volatile organic compounds (VOC).

Removal of oil tanks and contaminated soil at Stockton Street.

Removal of oil contaminated soil (and tank) at Louisville.

Stack testing at all facilities to determine the emissions of VOC and toxic substances.

Wastewater testing at Richmond facilities to characterize production discharges.

Solid waste inventory and waste minimization initiative.

Waste oil collection for boiler fuel.

Underground tank upgrade for Colonial Heights Packaging.

DuPont's contamination of groundwater in vicinity of Operations Center.

Spectron Superfund site.

Smith's Farm Superfund site.

Trade secret project for Material Safety Data Sheets and governmental reporting.

Development of mainframe Environmental Release and Chemical Inventory System.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

ENVIRONMENTAL ISSUES & TRENDS

AREA	ISSUES	TRENDS
General	Waste Management Source Reduction Pollution Prevention Waste Minimization	Increased Costs Additional Controls Longer Lead Time For Permits Additional Sources Regulated Increased Public Scrutiny More Laws and Regulations
Water	Nutrients (Nitrogen, Phosphorus) Groundwater Underground Tanks Storm Water - Combined Sewer Overflows	Upgrade Park 500 Wastewater Plant More Sludge To Dispose Of More Thorough Investigations Of Property Purchases Replace All Old Underground Tanks Increased Water Bills
Air	Ozone (Non-Attainment) VOCs Air Toxics Acid Rain Greenhouse Effect	More Restrictive Permits More Controls To Reduce VOCs More Testing, More Restrictions Longer Time To Get Permits More Controls On Boilers
Solid Waste	Landfills Sludge Disposal Recycling Packaging Special Wastes	Fewer Landfills, Increased Costs Increased Sludge Disposal Cost Mandated Recycling Material Restrictions & Deposits New Rules For Infectious & Medical Wastes More Difficult & Costly For Contaminated Soil Disposal
Hazardous Waste	Superfund Sites Interstate Bans & Restrictions Waste Minimization	Increased Involvement And Costs As More Sites Are Identified and Cleaned Up Fewer Places to Send Wastes Increased Costs Mandated Reduction

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

ENVIRONMENTAL ISSUES AND TRENDS

AREA	ISSUES	TRENDS
Community RTK & Emergency Planning	Trade Secrets Data Management Training for Emergency Response	Greater Difficulty To Protect Trade Secrets Increased Demand For Managing & Reporting Data Additional Emergency Response Training For Management
Toxic Substances	Asbestos PCBs Radon Gas Pesticides	More Restrictions On Asbestos Disposal Elimination Of Asbestos Containing Items Bans On More Pesticides

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

ENVIRONMENTAL ISSUES AFFECTING PHILIP MORRIS

I. NATIONAL TRENDS

The nation, the Congress and the President are showing a renewed interest in the environment. We have not seen the proposal of so many new environmental laws since the early 1970s.

Even without these new laws, industry would still be facing a renewed enforcement of environmental law as the current laws, many of which are almost twenty years old, come before Congress for re-authorization or amending. In many cases, the full effect of these laws was not brought to bear on industry that existed when the laws were passed. Existing industry had to reduce gross pollution, but the costs were often moderate. New industry was (and is) required to meet higher standards which are more costly to attain. For example, when old boilers wear out or production equipment is replaced with faster models, new permits must be obtained, following new procedures which dictate the new control standards. More time must be allowed to get permits and more capital spent on pollution control devices.

Testing procedures have also advanced considerably in the past twenty years. Pollution used to be measured in parts per million; now we can measure most chemicals can be measured to parts per billion or even per trillion. At this level, pollutants can be identified in many environments, but are not necessarily at levels which cause problems. The EPA and State regulatory agencies are overloaded with data for which they don't have the resources to interpret. The old laws required the EPA and the states to set numerical standards for individual chemical pollutants. The new tests, public concern, and bureaucratic caution combine each year to make longer lists of regulated materials and lower allowed emission levels. We are being required to spend more time and resources tracking or testing for these chemicals in order to submit reports required by environmental agencies. We don't yet know if we will be required to spend more capital for controls.

Solid waste issues are getting the most attention since the anti-litter laws of the 60s. Congress is showing considerable interest in laws to control refuse and consumer packaging. AIDS has raised nationwide fears about infectious wastes and ocean dumping. Concern about the ozone layer, and the greenhouse effect continue to be debated. Old landfills are filling up or being closed for environmental reasons. New landfills are not being opened because local residents can usually block them. Disposal costs are rising much faster than inflation and other business costs.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

II. AIR POLLUTION ISSUES

In the early 1970s air pollution was simple to understand and control. Air pollution control agencies were in their infancy, struggling to figure out how to regulate emissions into the air. They began with the obvious types of pollution, dust and dirt, the products of combustion (like sulfur dioxide, carbon monoxide and nitrogen oxide) and solvent type vapors (from gasoline storage). Simple control devices could be installed to filter dust from a gas stream. Proper combustion techniques combined with a fuel low in sulfur and ash content were acceptable controls for many of the combustion sources. White tanks with evaporation barriers prevented vapor loss and satisfied the regulations.

Over the years, the regulators have been acquiring data on types of emissions, amounts of emissions and the quality of the air we breathe in general. The measurement techniques have become more affordable, more reliable, more sensitive (to detecting low concentrations), and therefore more widely used. Not only have pollution measurement techniques improved but so has pollution control technology. This has provided the agencies with data necessary to pass regulations to protect air quality and limit emissions from many sources not originally controlled. The agencies have reduced the amount of emissions they will allow and have expanded the number of pollutants regulated.

A. Ozone Nonattainment

The geographic area to which stringent Volatile Organic Compound (VOC) control regulations apply is expanding. At the same time the regulatory agencies are reviewing their rules to find ways to tighten them up and get more reductions in VOC emissions. The change to the definition of what constitutes a VOC plays a role in this program. Substances not regulated previously are now regulated. Any organic compound emitted as a gas (with a few exceptions) is now suspected of contributing to the formation of photochemical pollution. The expansion of the areas and number of pollutants of concern coupled with the tightening of the regulations will bring our facilities under review for possible emission reductions through the use of add-on technology. A way to head this off is to modify the processes using volatiles (i.e., flavors) to reduce the amount of ethanol used.

Another concern is the trend to limit or eliminate the growth in emissions in these nonattainment areas. New sources of VOC emissions will have to "OFFSET" their emissions by reducing VOC emissions somewhere else in the area. If this is not possible at a facility that we own, it must be accomplished at another facility in

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

the area. This means we either buy VOC controls from someone else (and perhaps incur some responsibility for seeing that they are operated properly), or buy another VOC emitting business and close it! The details of this type of program have not been worked out yet by the states.

B. Federal Toxic Air Emissions Rules

There is renewed emphasis and accelerated progress in controlling major toxic pollutants. Ten source categories will be regulated within the next two years: 25% of source categories within four years, 50% within seven years, and all within ten years. Maximum Available Control Technology will be required to cut pollution sharply. Early, voluntary reductions will be encouraged and credit for those reductions will be provided once standards are set.

C. State Toxic Air Emissions Rules

North Carolina has been working on a rule to control toxic pollutant emissions for several years. The rule is going through final review before official approval is requested from the state's Division of Environmental Management. The rule proposes to regulate the impact of approximately 120 substances.

Kentucky is reviewing the toxic pollutant rule it has on the books. They are considering adding pollutants to that portion of the rule dealing with existing sources. They are also considering making changes to the standards. Nothing formal has been proposed yet.

Virginia has just started the official regulation review process of the rule they already have on the books. It is too early to know what changes will occur.

D. Acid Rain

Amendments to the Clean Air Act Propose cutting sulfur dioxide emissions by 10 million tons by the year 2000 and nitrogen oxide emissions by 2 million tons.

These reductions are to be achieved by the utility industry; industrial boilers are not mentioned at this time. However, other moves are afoot to reduce sulfur dioxide emissions from industrial boilers. (See discussion of NSPS for industrial boilers.)

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

E. Greenhouse Effect

Carbon dioxide (CO2) is the primary pollutant of concern contributing to the Greenhouse Effect (warming of the earth's atmosphere). At this time there is no specific effort by the regulators to limit or reduce CO2 emissions. However, they will get to it eventually. We have some significant CO2 emission sources and are planning more. Each new point of CO2 emissions should employ the latest technology to reclaim and reuse the CO2 rather than venting it to the atmosphere. Regardless of how cheap it is to replenish the CO2, we should reclaim as much as possible, thereby minimizing our impact on the Greenhouse Effect.

F. Proposed Standards For New Small Boilers

The proposed standard forces newly installed small boilers toward very low sulfur oil or natural gas. Coal would have to be low in sulfur and the exhaust gases would have to be scrubbed to meet the proposed limits. Note that Kentucky's limits for coal burning are already as stringent as those proposed. In Louisville we burn a low sulfur #6 oil (S = .8%) to comply with the State rule.

The proposed standard is effective as of the date of proposal, which was June 9, 1989. It may be several years before the rule is promulgated in final form, but the states will probably start using its provisions as their limits in permits issued from now on. We should plan for any new fuel-burning equipment to be oil/natural gas-fired and plan to purchase the low sulfur oil.

G. Lead Time For Permits

Air pollution regulations in Kentucky, North Carolina and Virginia require us to have a permit before we "commence construction." Adequate lead time must be allowed to develop and submit an application and give the Air Board time to review and issue the permit. Six months is the absolute minimum time the Virginia Air Board is taking to issue permits. North Carolina issues permits in ninety days. Kentucky is not issuing permits in less than three to six months.

If we begin construction before a state air agency issues a permit, we are open to enforcement actions and fines of up to $25,000 per day of violation.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

H. Current Air Projects

In the past twelve months, we have tested representative stacks at the BL Plant and Richmond Leaf Processing. By the end of 1989, representative stacks will have been tested at MC Primary, and Annex in Louisville. This testing will alert us to possible violations of the Toxic Rule of the Virginia Department of Air Pollution Control and Jefferson County Air Board. It will also provide us with information to submit complete applications for permits at our facilities in all locations.

Once permits are issued, their terms must be strictly followed. With a permit, we promise or guarantee certain things in order to operate legally and we must remain faithful to these commitments. Examples of permit commitments include:

1. Fuel Type and Quality - We must burn #4 oil with a sulfur content of 1.5%. Switching to a cleaner fuel (i.e. natural gas) can be handled easily, but a change to #6 oil with a 2% sulfur content will not be allowed.

2. Hours of Operation - We should specify continuous operation where appropriate; if something less is in the application, it takes a permit change to increase.

3. Raw Material Throughput - Same as 2.

4. Administrative Reporting - Quarterly reports may be required in a permit and must be on time.

I. Conclusions

Stricter emission limits on more and more pollutants lie ahead. Costs for operation of existing facilities and the construction of new facilities will increase. This will be due to tighter controls on volatile organic emissions, increased fuel costs to burn cleaner fuel, and the addition of pollution abatement devices where none have been required before.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

III. WATER POLLUTION ISSUES

The major water pollution issues of the 1990s will be Federal funding, Combined Sewer Overflows (CSOs), nutrient discharges and toxic discharges. CSOs are combined sanitary and storm sewers which overflow directly to rivers during heavy rain. Most older cities have CSO problems. With the general decline in Federal grant money, state and local governments are having a difficult time financing new wastewater projects. In most localities, sewer bills are already twice as much as water bills. This trend will continue or even increase. Increased sewer costs will increase operating costs in Richmond, Louisville and Cabarrus. Due to its smaller size, the Concord treatment plant has the greatest potential for delay of a major PM expansion due to a lack of wastewater treatment capacity. In the remote event this should occur, we could be required to help Concord expand their wastewater facilities or wait until they do it on their own.

As progress is made toward removing traditional, conventional pollutants, attention is shifting to nutrient and toxicity issues. Last year Virginia limited the discharge of phosphorus to 2 mg/L. Because Park 500 normally discharges 12-14 mg/L we must add new treatment processes to reduce our phosphorus discharge. Construction must be completed within three years. Some environmental groups want a similar limit on the discharge of nitrogen. The Governor has signed an agreement with Maryland to reduce nutrients by 60% but the State will not say if they are considering a nitrogen limit.

Improved laboratory instruments have caused a re-evaluation of the concept of toxicity. When "toxic" chemicals are present at a few parts per billion, or trillion, is the discharge really toxic? What are the combined effects of several toxic chemicals present in trace amounts? To address these questions, the comprehensive chemical testing and tests which expose fish, and other living creatures, to undiluted discharges are required.

Park 500 must perform these tests repeatedly to prove our discharge is non-toxic. If there is a hint of toxicity we must design a program to find the cause and abate it. Previous tests conducted at Park 500 indicate that we do not have a toxicity problem; however, new requirements for more frequent tests present more opportunity for problems to arise.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

A. Current Water Projects

The City of Richmond has begun issuing wastewater discharge permits to PM plants and has requested some analysis of our discharges. Engineering is studying the water and wastewater needs of various projects which might be expanded or introduced at Park 500. To satisfy the City and assist in planning for Park 500, we have started a study to measure the flow and analyze the wastewater from our Richmond plants. We hope to complete this project by the end of the year.

For many months, EEP has been advising Park 500 and Engineering on the State's progress toward imposing the phosphorus limit. Park 500 contracted an engineering firm to conduct bench tests to evaluate various designs for phosphorus removal. On July 31 we received a draft copy of the State's proposed new NPDES permit for Park 500 which establishes conditions and a timetable for meeting the phosphorus limit. The draft is currently under review. A final permit is likely this fall which will require construction to start by the spring of 1990.

In most states, underground tank regulations are administered by water pollution agencies because of their previous authority over groundwater. During the last two years, PM USA has conducted a vigorous program to remove and replace all regulated underground storage tanks. Tanks have been replaced at Park 500, MC, Leaf Processing, and 20th Street. Stockton Street will replace its fuel oil tanks next year and it will be our most expensive and challenging tank job. This site is known to have soil and groundwater contamination due to two pipe leaks. The State and City are already involved and they will insist the clean-up is complete. We have an estimate of $600,000, which could go higher depending on the extent of contamination.

B. Conclusions

Although current water pollution issues are not undergoing rapid changes, like air and solid waste issues, water issues will have a direct and immediate effect on our costs. The upgrade of Park 500's wastewater treatment must take place. The only question is for how much flow do we want to build. Richmond's efforts to reduce combined sewer overflows will certainly cause large increases to our water bills in the near future.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

IV. SOLID AND HAZARDOUS WASTE DISPOSAL ISSUES

Americans produce an average of 1300 pounds of solid waste each year and the country is running out of places to dispose of it. Two social forces - the throwaway mentality on the part of manufacturers and consumers, and the "not-in-my-backyard" (NIMBY) syndrome - have combined to create a serious and growing solid waste problem. More than 40% of the solid waste stream consists of the paper and paper products we discard from our homes, offices and factories. As this deluge of garbage is growing steadily, we must find ways to manage it safely and effectively.

A. Proposed Federal Laws

USEPA's agenda for action has a stated goal of managing 25% of the municipal solid waste through source reduction and recycling by 1992. Several bills have been proposed in Congress to address the solid and hazardous waste management problems currently facing our nation. Some of these bills are as follows:

1. "Waste Minimization & Control Act of 1988" (S.2773, 100th Congress, 2d Session), to amend the Solid Waste Disposal Act and extend authorization through 1992. This Act proposes among other things, the following waste reduction and recycling goals:

   a) Establish a national performance efficiency standard for industrial waste generators in SIC's 20-39, requiring within ten years that total hazardous residuals including emissions, effluents, spills and managed wastes will not exceed five % of production throughput.

   b) Establish a national goal of 25 % municipal solid waste recycling within four years, 50 % within ten years where recycling constitutes least cost disposal, and 10 % municipal solid waste reduction within four years.

   c) Impose a $7.00 per ton fee on virgin materials used for packaging.

2. "Waste Reduction Technical Assistance & Incentive Act of 1987" (100th Congress, 1st Session). The main purpose of this Act is to establish an Office of Waste Reduction in the USEPA in order to provide a central source of direction and information on waste reduction.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

3. "Waste Reduction Act of 1988" (H.R. 2800). Through this Act, Congress declares a national policy that:

a) The generation of waste should be reduced or eliminated at the source, whenever feasible.

b) Waste that is generated should be recycled, whenever feasible.

c) Waste that cannot be reduced or recycled should be treated in an environmentally safe manner.

d) Disposal should be employed only as a last resort and should be conducted in an environmentally safe manner.

The latest is a proposal by Rep. Thomas Luken (D-Ohio) to include, as part of a House Bill to re-authorize Resource Conservation and Recovery Act (RCRA), a national mandate of 50 % recycling and a fee for using virgin materials in certain products. The draft bill would mandate achievement of a 25 % recycling rate for municipalities within four years of passage and 50 % within eight years.

The upcoming re-authorization of RCRA is expected to include or address these areas:

- Waste minimization,
- Landfill ban,
- Organic toxicity test.

B. <u>Proposed State Laws</u>

The individual states are also passing waste minimization laws. California passed one in September. Virginia passed a law in 1988 which requires local government to recycle 25% of their solid wastes by 1995. This law does not apply directly to industry but we will probably be affected.

Consumer packaging is another hot issue. There is interest in laws to ban certain types of plastics and other packaging materials and require only biodegradable materials. This would probably require a federal law but the states can encourage industry by requiring a deposit on all plastics like some states have done for drink bottles and cans.

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C. Restrictions on Hazardous Waste Disposal

In April 1988, the EPA released a final proposed rule that established a schedule for land disposal restrictions in accordance with RCRA's Hazardous & Solid Waste Amendments (HSWA) of 1984. These rules set up a tiered system by which various types of hazardous wastes are banned from landfills without prior treatment. By the early 1990s, all hazardous wastes must be treated or meet strict standards before it can be put into a hazardous waste landfill.

The immediate consequence of these rules has been increased costs and increased difficulty in disposing of many types of wastes. Incineration facilities are no longer accepting certain wastes because they are afraid they will not be able to dispose of the ash. States like South Carolina and Alabama which have hazardous waste landfills are prohibiting them from accepting material from states which do not have such landfills.

D. Current Solid Waste Projects

A comprehensive solid and hazardous waste survey of all facilities is currently being conducted. All Virginia facilities have been surveyed by Employee and Environmental Protection. This information will be maintained current to promote centralized planning for waste minimization and recycling.

E. Conclusions

The trend is clear that the type of wastes regulated as hazardous will be increasing. Disposal of both hazardous and non-hazardous wastes will become more intense and will be more expensive. This certainly will impact PM operations. The annual waste disposal cost for PM-Richmond facilities is about $2.2M, of which only 10% is for hazardous waste.

Waste minimization is one of the few areas where national environmental goals and industry's economic interests clearly coincide. It provides opportunities to deal more efficiently and effectively with wastes that are hazardous to human health and the environment. These opportunities are unique in that they provide immediate financial rewards, increased waste management flexibility to generators, and reduced pressures on the nation's existing treatment and land disposal capacity.

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Although some areas or departments are recycling some of the waste streams, there is still a lot that can be done to reduce our waste. We must adopt a renewed solid waste management ethic that minimizes the amount of waste created by our processes and materials we purchase. That ethic must also maximize the amount of waste materials that are reused and recycled so that we minimize our reliance on landfills and incinerators.

V. COMMUNITY RIGHT-TO-KNOW ISSUES

On the average, there are five industrial chemical accidents in the U.S. each day. Newspaper articles about chemical incidents and industrial emissions are becoming all too common. They have allowed Americans, for the first time, to get a full accounting of what chemicals their industrial neighbors are releasing to the air, water and land around them. The magnitude and number of environmental releases has surprised even environmental experts and has prompted Congress to take action. A 1985 study reported, "The spills and emissions prior to 1985 totaled 420 million pounds of chemicals, 468 instances of death or injury were recorded. The evacuation of at least 217,457 people were involved."

Bhopal, India and Institute, West Virginia altered the way the American public and its lawmakers look at industry. Within the last four years, new rules from OSHA and EPA have profoundly altered the way in which industry is held accountable to the public. OSHA rules establish the Material Safety Data Sheets (MSDS) system and require industry to make MSDS's available to their employees. OSHA also requires a Hazard Communication Program to inform all employees of the dangers they might be exposed to and special training for emergency response personnel, including management. EPA rules extend these employee right-to-know concepts to the community and the general public.

In response to the public's concerns about the risks of chemical releases in their communities, Congress adopted the Emergency Planning and Community Right-to-Know Act of 1986. Known also as SARA or the Superfund Amendments and Reauthorization Act of 1986, its purpose is to "encourage and support emergency planning at the state and local levels" and to "provide citizens and local governments with information about potential chemical hazards in their communities." SARA Title III requires industry to provide information about chemicals stored on-site to: the State Emergency Response Commission, the Local Emergency Planning Committee and the Local Fire Department. In addition, chemicals being released from a facility must be reported to the EPA and to the State Emergency Response Commission.

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Information required to be reported includes:

- Chemical Identities
- Physical and Health Hazards
- Maximum Daily and Average Daily Quantities Stored
- Container Type
- Location Where Stored
- Pounds and Identity of Chemicals going into the Air, Water, and Ground

A. Current Right-To-Know Projects

This new SARA Title III legislation impacts our daily operations by imposing a number of new reporting requirements, by magnifying our visibility in the community, by necessitating improved coordination between diverse groups within Philip Morris, and by moderately limiting our protection of trade secrets as they relate to flavoring ingredients.

One impact of this regulation is that of staffing resources. The EPA estimated that to prepare just the toxic release report alone, that the average facility will need about 200 hours each to pull the data together, estimate releases, and complete the reporting forms. PM is much larger than the average facility. Our strategies this year must take into account this added regulatory burden. Where possible, EEP is automating the data collection and reporting processes. Given the volumes of information required to be stored, sorted and assessed, Philip Morris strategies must include pursuing the completion of its PM USA Health and Safety System. This system is currently 80% complete but final completion must remain a priority thru 1990. It should be noted, that by 1990, nearly all chemicals used or stored at Philip Morris will have to be submitted to the State Emergency Planning Commission, Local Emergency Planning Committee and the local fire department.

Because SARA Title III provides for public access to MSDSs, inventories, and emission releases/mass balance information, media and public scrutiny will certainly increase. In addition, the likelihood of citizen suits and increased enforcement actions are to be anticipated. Philip Morris must prepare itself for this public scrutiny by surveying our materials for chemical components which may invite scrutiny, by preparing to deal with inquiries from citizens as well as local, state and Federal authorities, and by improving our Emergency Response Teams.

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Obtaining correct information for SARA reporting has demanded a high degree of coordination and informational exchange between various groups working within Philip Morris. This has included:

- Purchasing - for reliable figures on usage and updated MSDSs.
- Manufacturing Services - for flavoring and trade secret issues.
- Engineering - for environmental release information.
- R&D - for flavoring and trade secret issues.
- Flavor Center - for labeling and MSDS issues.
- IS - for design and development of the mainframe system.

SARA Title III requires facilities to submit either the Tier 1 or Tier 2 reports to the local Emergency Planning Committee and the local fire department. These reports detail the type and amount of "hazardous chemicals" used and/or stored at PM locations. Chemical identity information that a firm does not want to disclose, because disclosure would cause substantial competitive harm, may be claimed a trade secret under certain conditions.

The flavoring compounds are a concern to Philip Morris. According to SARA, trade secret protection can only be sought for the chemical identity or name, and then only if certain substantiation requirements can be met in advance. In its rulemaking, the EPA has weighed the manufacturer's rights to protect legitimate trade secrets against the public's right to know, and has sided with the public's interests. If the EPA determines that a trade secret claim is frivolous, it may assess a civil penalty of $25,000 per claim. The EPA has defined a frivolous claim as "one without factual or legal basis or one where the facts and circumstances relied upon to substantiate a trade secret are without merit."

PM has met several times over the last year with attorneys from Arnold & Porter, R&D, Manufacturing Services and Purchasing to develop a strategy for achieving full compliance while also protecting our trade secrets. These meetings resulted in an agreement that the following steps be pursued:

- Purchased "single chemicals" will be reported by chemical name (14 flavor chemicals in 1989-1990 reporting). No trade secret protection will be sought.

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- Purchased "mixtures" will be reported by DM code and description (22 purchased flavor mixtures in 1989-1990).

- Philip Morris finished flavors will be reported by DM Code and description (103 PM finished flavor mixtures in 1989-1990). Separate MSDSs will be developed for each of these PM finished flavors.

B. Conclusions

Employee and community right-to-know rules have not yet been fully promulgated by government or implemented by industry. These rules have added to both costs and workload.

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PHILIP MORRIS U.S.A.

INTER-OFFICE CORRESPONDENCE

RICHMOND, VIRGINIA

To: . J. N. Tenhet Date: June 6, 1989

From: . W. P. Pitts

Subject: . Environmental Laws With Which PM Must Comply

I have compiled the following list of federal, state and local acts, laws and regulations from the indices of the Environmental Reporter and based on the working knowledge of department personnel.

FEDERAL - 34

The National Environmental Policy Act
Comprehensive Environmental Response, Compensation and Liability Act of 1980
Emergency Planning and Community Right-to-Know Act of 1986
Clean Air Act
Energy Supply and Environmental Coordination Act of 1974
Radon Research and Indoor Air Research Act of 1986
Resource Conservation and Recovery Act of 1976
Federal Water Pollution Control Act
Water Resources Planning Act
Safe Drinking Water Act
Federal Environmental Pesticide Control Act of 1972
Soil and Water Resources Conservation Act of 1977
Water Resources Research Act of 1984
Toxic Substances Control Act
Occupational Safety and Health Act of 1970
EPA's New Source Performance Standards
EPA's National Emission Standards For Hazardous Air Pollutants
EPA Stratospheric Ozone Protection Regulations
EPA Regulations for Assessment and Collection of Noncompliance Penalties
EPA National Pollutant Discharge Elimination System Permit Regulations
EPA Regulations on Designation of Hazardous Substances
EPA Regulations on Determination of Reportable Quantities for Hazardous Substances
EPA Regulations on Criteria and Standards for the National Pollutant Discharge Elimination System
EPA National Primary Drinking Water Regulations
EPA National Secondary Drinking Water Regulations
EPA Toxic Pollutant Effluent Standards
EPA General Provisions for Effluent Guidelines and Standards
EPA General Regulations for Hazardous Waste Management
EPA Regulations for Identifying Hazardous Waste

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EPA Regulations for Hazardous Waste Generators
EPA Regulations for Hazardous Waste Transporters
EPA Regulations for Owners and Operators of Permitted Hazardous Waste Facilities
EPA Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks
EPA Regulations on Approval of State Underground Storage Tank Programs

KENTUCKY & JEFFERSON COUNTY - 12

Kentucky Environmental Protection Law
Kentucky Air Pollution Control Regulations
Kentucky Solid Waste Law
Kentucky Underground Storage Tanks Laws
Kentucky Waste Management Regulations
Kentucky Waste Discharge Regulations
Kentucky PDES Permitting Program Regulations
Kentucky Spills Regulations
Kentucky Biochemically Degradable Wastes Regulation
Kentucky Water Quality Standards
Jefferson County Air Pollution Control Regulations
Jefferson County Metropolitan Sewer Discharge Regulation

NORTH CAROLINA - 13

North Carolina Water and Air Resources Acts
North Carolina Environmental Policy Act of 1971
North Carolina Air Pollution Control Laws
North Carolina Air Pollution Control Regulations
North Carolina Solid and Hazardous Waste Management Act
North Carolina Comprehensive Environmental Response Act
North Carolina Solid Waste Management Regulations
North Carolina Hazardous Waste Management Regulations
North Coastal Area Management Act
North Carolina Oil Pollution and Hazardous Substances Control Act
North Carolina Water Pollution Control Regulations
North Carolina Water Quality Standards
Rocky River Treatment Plant Discharge Regulations

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VIRGINIA - 20

Virginia Air Pollution Control Laws
Virginia Environmental Quality Act
Virginia Air Pollution Control Law
Virginia Air Pollution Control Regulations
Virginia Litter Control and Recycling Act
Virginia Waste Management Act
Virginia Underground Storage Tanks Act
Virginia Hazardous Materials Emergency Response Act
Virginia Solid Waste Regulations
Virginia Hazardous Waste Management Regulations
Virginia Fees for Hazardous Waste Facility Site Certification
Virginia Rules for Hazardous Waste Facility Site Certification
Virginia Financial Assurance Rules for Solid Waste Facilities
Virginia State Water Control Law
Virginia Environmental Impact Report Law
Virginia Water Pollution Control Regulations
Virginia Discharge Permit Regulations
Virginia Water Quality Standards
Virginia Chesapeake Bay Preservation Act
Virginia Department of Commerce Asbestos Removal Licensing Act

CC: Environmental Section Staff

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STATELINE

THE TOBACCO INSTITUTE

STATE ACTIVITIES DIVISION

SPECIAL REPORT

April 4, 1989

1989 STATE & LOCAL LEGISLATION to TAX OR RESTRICT PACKAGING MATERIALS

This is an update to the March 8, 1989 edition of the StateLine Special Report on 1989 State and Local Legislation to Tax or Restrict Packaging Materials.

Background

From the 1970s to 1986, nearly a dozen states passed litter control, recycling and solid waste disposal programs funded through a variety of assessments or taxes. Most of these taxes were levied on manufacturers, wholesalers or retailers of products deemed to contribute to the litter problem and were generally pegged at a percentage of price or a percentage of gross receipts attributable to these "litter-producing" items, which may include soft drinks, alcoholic beverages and newspapers, as well as cigarettes and other tobacco products. Other states' assessments were levied throughout the entire business community through income, sales or other business tax surcharges. Most of these state laws have since been repealed or replaced with "bottle bills" requiring refundable deposits on beverage containers.

In 1987, however, two new approaches to litter control, solid waste management and problems allegedly associated with use of certain chemicals in packaging materials began to take shape.

Legislation limiting the use of certain materials in containers and packaging was introduced in a number of states in 1987, but these early proposals were not of direct concern to the industry. However, Suffolk County, NY, considered an ordinance that year to ban use of all nonbiodegradable packaging materials in the county. The sponsor's real intent was aimed at fast-food "clamshells" and other containers made of styrofoam-like materials, but the measure was finally passed as a ban only on use of nondegradable plastic bags. A coalition of plastics companies filed suit against the County Executive in an effort to repeal the ordinance. In 1988, a similar ordinance to ban plastic bags was passed in Nassau County, New York.

New variations on the litter control tax have been proposed to tax "litterable" products on an ad valorem basis, or to tax the packaging materials, not the product itself, on a per piece or per pound basis. In 1987, such taxes were introduced in at least three state legislatures (New York, Oregon and Vermont); none passed.

In 1988, bills to tax containers or to restrict the use of certain packaging materials were introduced in ten states. Only one bill was passed (Florida); most were given only cursory consideration, or were quickly amended to limit the scope of affected products, removing tobacco products from the measure. The Florida measure, S1192, was enacted on June 24. It provides for a recycling quota of 50 percent by October 1992 for glass, plastics, plastic-coated paper, aluminum and other metals. If the quota is not met, retailers will be assessed an "advance disposal fee" of one cent per container. If the quota is still not met by 1995, the fee will climb to two cents per container.

No local-level packaging legislation that would affect the tobacco industry directly was considered in 1988.

Stored at https://www.industrydocuments.ucsf.edu/docs/fbfh0000

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1989 Legislative Activity

The solid waste issue has proved to be a priority on most state legislatures' agendas in 1989. Legislation to tax packaging materials or impose recycling quotas has been introduced in five states thus far in 1989. Proposals to prohibit the use of certain packaging materials have been introduced in seven states.

California In his "State of the State" address, Governor Deukmejian indicated that a top priority in 1989 will be the development of an integrated waste management proposal to work toward the goals of waste reduction and recycling.

A80, the "Solid Waste Recycling Act of 1989," introduced by Assemblywoman Killea, would require each local agency to prepare, adopt and implement a waste reduction and recycling plan of specified elements. The bill would authorize those local agencies to impose fees to pay the costs of implementing the waste reduction and recycling plan on each generator of solid waste. "Waste reduction" would include the elimination of nonrecyclable materials, reduction in packaging and composting. A hearing is scheduled for April 17 in the Assembly Natural Resources Committee. A2199 would require the inclusion of plastics reduction and recycling elements in the county plans established in A80.

Assemblyman Sher introduced a bill, A939, to encourage the reduction of waste by minimizing unnecessary packaging, increasing product life spans and increasing the recyclability of materials disposed of in landfills. A1041 by Assemblywoman La Follette, would require the state Waste Management Board to conduct a study on plastics recycling. Another bill by La Follette, A1171, would limit the use of nonbiodegradable product packaging. Assemblyman Peace introduced a bill, A1332, to require the state Waste Management Board to prohibit the use of any plastic which is not degradable effective January 1992. A1332 is scheduled for a hearing on April 24 in the Assembly Natural Resources Committee. Another measure by Assemblyman Moore would enact the "Problem Plastics Elimination Act." The bill, A1796, would require the labeling of all "problem plastic products" (products which contain plastic which is not degradable) which are sold or distributed directly to consumers to indicate the polymer components of the product. The bill would impose a fee of an unspecified amount upon unspecified persons on each ton of problem plastic products. All of these bills are pending in the Assembly Natural Resources Committee.

Colorado H1300 by Representative Tucker would authorize the state Advanced Technology Institute to initiate a pilot program to develop new technologies for plastics recycling and for developing new markets for recycling plastic products. The bill would require that plastic manufacturers code their products. H1300 passed the House on February 23 and is pending in the Senate Appropriations Committee.

Connecticut Rep. Mushinsky, House co-chair of the Environment Committee, has introduced a comprehensive solid waste bill, H6641, that would impose a five cent tax on all nonrecyclable packaging. If the packaging contains recyclable or recycled material, the tax would be cut in half. Language from other packaging measures, H6457, H6668 and H6470, was incorporated into H6641. Hearings were held on March 1 and on March 9 in the Joint Environment Committee. H6470 would require the Commissioner of Environmental Protection to develop a program of consumer and industrial education to promote the purchase and use of items packaged in efficient, biodegradable and recycled materials. H6641 is still pending in committee.

Several bills have been introduced this session involving disposal fees, beverage container deposits, recycling programs, and bans on nonbiodegradable packaging materials. H5037, by Rep. Gambardella, would prohibit the sale of nonbiodegradable plastics or styrofoam. Another bill, H5323, by Rep. Gordes, would fund disposal of products through user disposal fees, where each user is responsible for their own waste generation. H6127, by Rep. McNally, would impose a tax on all nonbiodegradable food packaging. H6592, by Rep. Levin, would assess a surcharge on nonrecyclable packaging and on products requring special disposal such as tires and white good items. H6666, by Rep. O'Neill, would prohibit the sale of all nonrecyclable containers. Senator Atkin introduced a measure, S207, that would require packaging of goods and food to be biodegradable. These bills are pending in the Joint Environment Committee.

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Hawaii Several measures have been introduced relating to the degradability of plastics packaging, particularly in food packaging and plastic bags. However, two House bills that originally related only to food packaging were amended to include all packaging and were passed by the House. H167 would now require that all packaging be degradable, reusable, recyclable or combustible. H171 would require that food and retail establishments notify customers in writing as to whether the packaging is or is not degradable, reusable, recyclable or combustible. These bills are pending in the Senate Agriculture Committee. A Senate bill, S196, that would have banned the sale by January 1991 of any product packaged or placed in any nondegradable packaging, did not meet the March 3 deadline for action and is therefore dead for 1989.

Illinois Representative Bowman has introduced H154, the "Container Fee and Deposit Act." H154 would impose a refundable "advance disposal fee" on certain containers that are not being recycled at a rate of at least 50 percent. The bill is pending in the House Energy, Environment and Natural Resources Committee.

Iowa In his "State of the State" message, Governor Branstad recommended comprehensive environmental legislation in 1989, including programs to ensure safe drinking water quality through groundwater protection, a reforestation program and a future ban on certain nonbiodegradable product and food packaging materials. In his Executive Order Number 36, Governor Branstad declared that state government will be a model for public and private sectors in Iowa in supporting the development, marketing and use of degradable products. His order bans a variety of nondegradable products according to a phase-in schedule beginning with CFC-foam containers by July 1, 1989; garbage bags and foam containers by July 1, 1990; foam packaging materials by January 1, 1990; and disposable plastic containers by January 1, 1992. State agencies are directed to purchase degradable disposable products when those products are reasonably available and cost competitive. State agencies are directed to work with the Iowa Corn Promotion Board to help develop industry sources that provide degradable materials and products for use in disposable packaging products.

A study bill was introduced by Rep. Shoultz, HSB200, that would ban the plastic can, require mandatory plastic container coding and would grant authority for further packaging curbs to a waste reduction bureau. The state Environmental Protection Commission would be authorized to impose disposal fees and rebates on nonrecyclable products and deposits on recyclable products by July 1991. The fees would terminate after five years unless the Commission determines that the funds are required to support the management of waste streams which have been identified for separation or special handling. Another measure, H282, which would levy a 4-cent tax on nondegradable bags, was passed by the House on March 31. H229, which would require state agencies to purchase biodegradable garbage liners, died in the House Energy and Environment Committee.

Indiana Senator Leising introduced legislation, S430, to require governmental bodies to procure degradable plastic products made with cornstarch whenever economically feasible. The bill was reported favorably by the Senate Environmental and Consumer Affairs Committee on February 23. It was passed by the Senate on February 28 and was referred to the House Environmental and Consumer Affairs Committee. It was reported by the committee on March 31 and is pending House floor consideration.

Maine Packaging tax legislation was introduced by Rep. Paradis: L25, to impose a three cent tax on the sale of each container used to package nonfood products and fast-food products, filled or unfilled, which is sold or supplied for resale at retail or as a container for a product for retail sale. Containers which have a refund value or deposit of at least five cents per container would be exempt from the tax. A hearing was held on the measure in the Joint Taxation Committee on February 14 and a work session was held on February 16. No further committee action has been taken. Rep. Ridley introduced legislation, L92, to establish an incentive for the use of packaging which is either recycled at a high rate or is made largely of recycled material. Packaging which does not meet these criteria would be subject to

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a three cent per item tax to be collected at the point of retail sale. All packaging associated with a single retail product is to be considered a single container subject to the tax. The Joint Taxation Committee gave L92 an unfavorable report on March 15.

Maryland A study bill, HJR24, was introduced by Rep. Pitkin to create a Solid Waste Advisory Council to study the packaging issue as it relates to recycling. The Council would be required to report legislative recommendations to the legislature by December 1989. It was reported by the House Environmental Matters Committee on April 3. No further action has been taken. Another measure, SJR19, by Senator Winegrad, would require the Secretary of the Environment to establish a Municipal Solid Waste Recycling Council to study issues concerning packaging materials and the role of these materials in recycling efforts. The bill passed the Senate on March 9. A hearing was held on the bill in the House Environmental Matters Committee on March 29.

Massachusetts The Dukakis Administration announced on January 4 that it was seriously studying, as part of its budget balancing effort, a proposal to impose a three cent tax on any package sold in the state that is not made with recyclable material. On January 31, H1783, the "Packaging Reduction and Recycling Act" was introduced by Rep. Roosevelt. The bill would impose a three cent packaging tax to be levied on the distributor or manufacturer of packages which are not made of 50 percent recycled materials. Containers measuring less than two cubic inches in volume would be exempt. The bill would also ban polystyrene products manufactured with CFCs and plastic beverage connectors that do not degrade within 120 days. A hearing was held on March 2 in the Joint Natural Resources Committee; no further action has been taken.

Another measure, H1049, introduced by Rep. Moore, would establish a joint recycling research and assistance program to promote recycling in the state. The program would be funded by packaging tax revenues and other designated funds to help companies expand such programs to commercial-scale operations which result in recycling, reuse, remanufacturing or reduction in packaging and other materials. A hearing was held on H1049 on March 2 in the Joint Natural Resources and Agriculture Committee; no further action has been taken.

Minnesota Representative Tompkins introduced H1060 which would ban the sale of any consumer product that is packaged in nondegradable materials. Certain nondegradable packaging could be exempted if there is no safe alternative packaging for a product or if at least 25 percent of the nondegradable packaging material is being reused or recycled on a statewide basis. The pollution control agency (responsible for determining whether alternative materials are available) is prohibited from considering the cost of the alternatives or the potential shortened shelf life. H1060 has been referred to the House Environment and Natural Resources Committee. H1025 and S824 would ban the use of CFC-processed materials unless they are approved by the pollution control agency. They would also require CFC-manufactured products to have a warning label and would impose a tax on CFC sales. These bills are pending in the House and Senate Environment Committees, respectively. A resolution introduced by Representative McGuire, HR1183, would memorialize the President and the U.S. Congress to adopt environmentally sound standards for the packaging of consumer products. HR1183 has been referred to the House Environment and Natural Resources Committee.

Missouri H96, introduced by Rep. Dougherty, would ban the sale of products manufactured in whole or in part of thermoformed polystyrene foam or using CFCs, or the sale of products using such packaging or wrapping. The bill would also prohibit the sale or distribution of products transported in containers utilizing polystyrene plastic packaging or other petroleum-based nonbiodegradable packaging material. H97, also by Dougherty, prohibits the sale of nondegradable ring connectors and bans the distribution or sale of multiple plastic resin containers or plastic cans. These bills and several other solid waste measures were heard on February 9 in the House Energy and Environment Committee, chaired by Dougherty. The Committee incorporated H96, H97 and two other measure into a committee substitute to prohibit the sale of food products packaged in containers manufactured from CFCs. It does not contain the original prohibition on petroleum-based nonbiodegradable packaging material. The committee substitute passed the House on March 15 and has been referred to the Senate Energy and Environment Committee.

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Nebraska The Natural Resources Committee held a hearing February 9 on the "Degradable Products Act," L325, introduced by Senator Hefner. The bill would promote the use of degradable plastics by banning the sale of "nondegradable" products -- retail garbage bags, plastic bags, ring connectors and other connecting devices, disposable personal care products and food containers -- over three years. The measure was reported by the Natural Resources Committee on March 15 and has been placed on General File.

New Hampshire H669, introduced by Rep. Malcolm, would prohibit the use of nonbiodegradable single-use plastic items. A hearing was held in the House Environment and Agriculture Committee on February 21; no further action has been taken. Another measure, H746, by Rep. Merrill, would impose a 4-cent disposal fee on containers made of aluminum, cloth, fiber, glass, metal, paper, paperboard, plastic, wood, any combination thereof, or any new material type not listed but used in in the manufacture of containers. The manufacturer, wholesaler, seller, supplier, distributor or retailer of a container making the first sale to a container purchaser within the state shall be liable for and shall pay the fee to the state Revenue Department. Containers in the form of wraps or wrappers "necessary to protect and maintain a product's freshness, taste, odor or hygienic integrity" are exempt. The House Environment and Agriculture Committee voted down the bill on March 8. The bill will be combined with deposit legislation and sent to a summer study committee. It is expected to be reconsidered next year.

New Jersey Three packaging tax measures carried over to the 1989 session. A3014 and companion S2460 would impose a 2-cent tax on rigid containers with a capacity of more than six ounces. The Department of Environmental Protection would be authorized to exempt products for which there is no feasible or practical substitute container. S126 would impose a tax on "single use" items made of or packaged in polymeric or petroleum-based nondegradable materials, a rate of one percent of sales in the state.

S126 and S2460 were rereferred to the Senate Revenue and Finance Committee. The Committee developed a substitute based on the provisions of the two bills which would impose a two cent disposal fee at the retail level on food and nonfood products packaged in containers with a capacity of more than six ounces. Three years after enactment, the fee would climb to four cents per nonexempt container. A hearing was held on the committee substitute on March 2 in the Revenue and Finance Committee. The measure was released from the Committee on March 2 and is pending Senate floor consideration. The earliest the bill could be given floor consideration is April 17.

Four other New Jersey bills to limit the use of nondegradable packaging materials also carried over to the 1989 session. They did not receive any consideration by the legislature in 1988. A659 would prohibit the sale of nonbiodegradable products or packaging materials commonly found as litter on beaches. The bill would allow exemptions for products that cannot be substituted with biodegradable materials. A2035 would prohibit the sale of products wrapped in polystyrene plastic or other petroleum-based nondegradable material: the Department of Environmental Protection could make exemptions where there is no feasible or practical substitute. S2566 would prohibit the retail sale or distribution of plastic containers and items marketed in a plastic container made, in whole or in part, of plastic or any other petroleum-based nonbiodegradable material routinely discarded after use or consumption. It would also prohibit the distribution or use of any plastic grocery bags by retail food establishments. S127 would prohibit sale of reusable plastic materials; exemptions would be allowed where there is no feasible alternative. The Senate bills are pending in the Senate Energy and Environment Committee and the Assembly bills are pending in the Assembly Solid Waste Management Committee.

The "Solid Waste Reduction Act," A4077, a 1989 introduction by Assemblyman Spadoro, would impose a three cent tax on containers based upon the recycled materials content, biodegradability, reusability and the rate of recycling of the materials used in the production of the container. The bill also would ban single-use items or products which would include all containers, items and packaging constructed of polyvinyl chloride, polyvinylidene chloride, polypropylene, polystyrene, or transported in containers using plastic packaging materials. A4077 is pending in the Assembly Environment Committee.

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A study measure, A4009, introduced by Assemblyman Ogden, would appropriate $100,000 to the Solid Waste Division of the Public Utilities Board to perform an in-depth study of volume-based or "per-container" rates for solid waste collection services. The bill was reported favorably by the Solid Waste Committee on January 27 and is pending Assembly floor consideration.

New York - Assemblyman Hinchey has introduced for the third year an updated version of his packaging tax legislation. A5582, entitled the "Waste Reduction and Recycling Act," would assess a 3-cent tax on manufacturers and distributors based upon the reusability and recyclability of the materials used in the production of the package. The tax would provide funding for landfill closures and development of markets and technologies for recycling and waste reduction. The bill has been referred to Chairman Hinchey's Assembly Environmental Conservation Committee. A hearing is scheduled for April 4. Another bill, A4612 by Assemblyman Robach, would impose a waste disposal fee of .001 percent on the retail sale of all products sold in the state. A4612 is pending in the Environmental Conservation Committee.

Assembly Bill 605, by Assemblyman Brodsky, would prohibit the use of all nonbiodegradable plastics effective January 1, 1993, except recyclable or repeated use containers. A2884, by Assemblyman Kelleher, would prohibit the sale of items packaged in nonbiodegradable materials. Its companion, S3760 by Senator Tully, has been referred to the Senate Environmental Conservation Committee. Another measure, A707, would prohibit state and local agencies from procuring items made of or packaged in nonbiodegradable materials. These bills are pending in the Assembly Environmental Conservation Committee. Asemblyman Hinchey introduced a proposal to ban polyvinyl chloride (PVC) packaging. A5578 would ban PVC flexible wrap, bags, rigid and semi-rigid containers. The bill was reported by the Assembly Environmental Conservation Committee on March 21. It has been referred to the Assembly Ways and Means Committee.

Additionally, the beverage wholesalers are expected to request the introduction of a bill to phase out the container deposit law and to create a fund based on a packaging tax at the retail level to help finance the state's 1988 Solid Waste Management Act.

Governor Mario Cuomo, in his "State of the State" message, proposed the establishment of a Solid Waste Management Fund to provide grants to local governments for planning, source separation, waste reduction, recycling and household hazardous waste programs. The program would be funded by recapturing unclaimed beverage container deposits. In addition, the state Environmental Conservation Department is studying how to reduce excess packaging.

North Dakota H1262 by Rep. Hokana provides for the labeling of certain plastic products and requires certain plastic ring-connectors to be degradable. H1262 would also promote the procurement of products manufactured with starch-based plastics and soybean-based inks. The bill was reported favorably by the House Agricultural Committee on February 27. It passed the House on March 1 and passed the Senate with amendments on March 31. Another measure, S2086 by Sen. Lashkowitz, that would have prohibited the disposal of nonbiodegradable solid waste in sanitary landfills, was withdrawn by its sponsor.

Oregon H3218 by Rep. Sowa would impose a litter tax on distributors of "litter producing" products of .015 percent of the wholesale price. Litter producing items include any glass, metal, plastic, synthetic fiber, paper or combination thereof that contains, wraps or holds food for a household pet, food or beverage for human consumption, tobacco products, magazines, cleaning agents and toiletries. H3218 has been referred to the House Environment and Energy Committee. Senate Agriculture and Natural Resources Committee Chairman Springer introduced an omnibus bill, S990, which includes polystyrene bans, plastic recycling and degradability requirements. The bill would ban the use of polystyrene foam products, would require mandatory coding of plastic bottles and would establish a phased-in schedule for "effective recycling programs" up to 75 percent by 1990. A hearing was held on the measure on March 28. No further action has been taken.

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Rhode Island H7030 by Rep. Henseler, would impose a waste disposal fee on manufacturers of packaged goods. S1294, by Sen. Goldberg, would create a special commission on estimating a tax on "hard to dispose of" items. These bills are pending in the House and Senate Finance Committees, respectively. Another measure by Sen. Watson, S1308, would impose a 50-cent per gallon surcharge on nonbiodegradable plastic containers used for industrial purposes to be paid by the wholesaler. The bill has been temporarily tabled following a March 8 hearing in the Senate Special Legislation Committee.

Vermont H196 would impose a franchise tax on distributors and manufacturers of "litter stream" products in the state. The tax would be imposed upon each corporation subject to taxation in the state. H196 also would direct the governor to negotiate with other interested states to attempt to develop an interstate compact to provide disincentives to packaging that is not recyclable or biodegradable. The bill has been referred to the Natural Resources and Energy Committee. H404 by Rep. McCormack would impose a one cent packaging tax on consumer products with nonrecyclable packaging. The tax would be assessed at the retail level. The Natural Resources and Energy Committee reported the bill favorably on March 21. It has been sent to the House Ways and Means Committee.

Virginia House Joint Resolution 434 encourages the plastics industry to utilize cornstarch in its manufacturing process to render plastic products biodegradable. The resolution was approved by the House and Senate.

Washington During 1988, the Joint Select Committee on Preferred Solid Waste Management met to consider solid waste management options in order to make recommendations to the legislature in 1989. The committee drafted legislation that contains provisions for source separation and collection, incentives to encourage manufacturers to use recycled feedstock and recyclable packaging materials, and has developed plans for a public education effort. The committee chairman approached industry groups requesting voluntary action by the business community. The Food Marketing Institute is developing model packaging standards for voluntary use by makers of "house" brands. The committee is mandated to consider the feasibility of implementing a tax system to incorporate disposal costs into product prices. The Association of Washington Business is working closely with the committee on the packaging issues.

On January 25, H1481 was introduced by Rep. Chandler to regulate biodegradable plastic solid waste and prohibit the wholesale or retail sale of goods to consumers when nonbiodegradable packaging is used. The bill did not meet the March 15 deadline for committee action and is therefore dead for 1989. H1671, by Rep. Sprenkle, would establish a comprehensive solid waste management program focusing on recycling and source separation. H1671 would also establish a product packaging task force to make recommendations for reducing product packaging in the waste stream. H1671 was amended to include a four year moratorium on local ordinances banning any type of plastics or local packaging taxes. It was reported favorably by the House Environmental Affairs Committee on March 5 and passed the House on March 10. H1671 is pending Senate floor consideration. In addition, Senate Joint Memorial 8002, introduced by Sen. Metcalf, calls for the formation of a Western State Recycling Coalition. The measure would request that delegates from Alaska, Oregon, Idaho, California and Washington attend a meeting in August 1989 to draft an interstate recycling compact. The Resolution passed the Senate and is pending House floor consideration.

Wisconsin The State Legislative Council Subcommittee on Resource Recovery charged with drafting a comprehensive state recycling plan, voted February 28 to include a ban on plastic foam fast food containers and packaging materials by 1995. The subcommittee had already agreed to ban the landfill or incineration of plastic packaging, aluminum, glass or steel containers, corrugated paper or boxes, newspapers and white good items. The proposal also would discourage state purchase of single-use disposable material and requires whenever practical, the purchase of multiple-use durable products by the state. A "throw-away" fee would be imposed on all single-use packaging to be paid by wholesalers. Proceeds of the fee would be used to support recycling grant programs and education.

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Local Activity

Solid waste management issues are being considered at the local level as well. The Public Health, Human Resources and Senior Citizens Committee of Los Angeles, CA met February 10 to consider a motion made by Councilman Yaroslavsky and Councilwoman Galanter requesting that "the City further address the problem of nonbiodegradable packaging products by instructing various departments to purchase and use the new biodegradable plastic trash bags that self-destruct when exposed to sunlight." Councilman Yaroslavsky proposed a ban on the use of all nonbiodegradable packaging materials in the City in 1988. No further action has been taken.

The City Council of Santa Monica, CA is conducting a study of plastics in the waste stream and is considering a polystyrene food packaging ban. The Natural Resources Commission of the Davis, CA City Council has asked its staff to prepare a report on the environmental consequences of CFCs in refrigerators, fire extinguishers and other products. The Commission has also decided to try to include plastics in its long-range plans of recycling and resource recovery.

The Chicago, IL City Council is considering a resolution to study the impact of polystyrene foam and polyvinyl chloride packaging on atmospheric problems. No action has yet been taken by the Council.

The Montgomery County, MD Council is considering legislation to prohibit the sale of any consumer product that is contained in a disposable plastic container. However, individual cigarette packages would be excluded under an exemption for packages and containers that weigh six ounces or less when full. Action on the legislation is expected this month. In a related matter, the Council held a hearing February 16 on legislation to establish a pilot plastics recycling program. No further action has been taken.

Hearings were held on February 15 and 16 in St. Paul and Minneapolis, MN on identical ordinances to prohibit retail food establishments from selling any food or beverages packaged in "non-environmentally safe" packaging materials. "Environmentally safe" is defined as packaging that is degradable, recyclable or returnable. On March 23, a Minneapolis City Council subcommittee voted to send to the full Council their ordinance banning plastic food containers. The Council adopted the ordinance on March 31; it will become effective on July 1, 1990.

The Newark, NJ City Council recently adopted the 1987 Suffolk County, NY ordinance banning plastic shopping bags and take-out foam packaging. The Township of Stafford, NJ is considering a proposal that would prohibit retail establishments from providing food or any product directly to consumers unless it is placed, wrapped or packaged in biodegradable packaging. The proposal is still in draft form and has not been scheduled for introduction.

The Borough of Sea Bright, NY recently enacted an ordinance modeled after the Suffolk and Nassau County laws. The ordinance bans the use of all plastic shopping bags and take-out foam packaging by government and commercial establishments. In addition, many other New York localities have indicated their interest in the Suffolk and Nassau County ordinances banning nondegradable plastic bags.

A Milwaukee, WI Citizen Advisory Task Force voted on March 14 to recommend that the City Council consider an ordinance that would ban polystyrene foam food packaging by a specific date, but would first give industry an opportunity to develop foam recycling in the city with the help of an ad hoc advisory committee. The task force wants a 50 percent recycling rate for foam within 18 months. The proposal is expected to be introduced to the City Council on April 4.

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Related Issues

The St. Lawrence Starch Company, a Canadian-based corn wet miller company, is marketing a product called Ecostar, a corn starch derivative it claims, when added to plastics, renders them biodegradable when buried. Originally developed in Britain, Ecostar is widely used in film and bags in European countries where laws dictate biodegradable packaging. The company has plants in four U.S. states and in Quebec and Ontario. U.S. corn farmers have taken a keen interest in the issue.

The plastics industry's position is that the photo- or biodegradability of plastics is not the solution to landfill problems. According to the plastics industry, "plastics in landfills are currently not a problem; degradable plastics in a landfill could be."

Other Activities

The National Conference of State Legislatures, in conjunction with the U.S. Environmental Protection Agency and the American Society of Mechanical Engineers, is sponsoring a seminar entitled, "Managing Solid Waste: Options for State Legislative Action." The seminar will be held on June 11-13, 1989 in Breckenridge, Colorado. The deadline for preregistration is May 26, 1989. For more information contact the NCSL Seminars Department at (303) 623-7800.

The U.S. Environmental Protection Agency's Office of Solid Waste Municipal Solid Waste Task Force, created in 1988 to develop a strategy for improving the nation's management of municipal solid waste, issued its final report, The Solid Waste Dilemma: An Agenda For Action. The final report calls for a "systems" approach to managing municipal solid waste through the complementary use of source reduction, recycling, combustion and landfills. It also underscores the need for a fundamental change in the nation's approach to producing, packaging and disposing of consumer goods.

The Task Force has identified the following objectives for a national agenda for action to solve the municipal solid waste dilemma: increase the waste planning and management information available to states and local communities; increase effective planning by waste handlers, local communities and states; increase source reduction activities by the manufacturing industry, government and citizens; increase recycling by government and by individual and corporate citizens; reduce environmental and health risks from municipal solid waste combustion and landfills. According to the report, although EPA is not recommending the adoption of economic incentives such as packaging taxes, the Agency believes that they are potentially useful tools for further consideration. EPA will assess the efficiency of state and local taxes of products and packaging for their impact on reducing both the volume and toxicity of municipal solid waste. For a copy of the report, contact EPA's Office of Solid Waste in Washington, D.C.

The Coalition of Northeastern Governors (CONEG) identified solid waste management as a primary regional policy concern in March 1988. The members of CONEG are William O'Neill (CT), John McKernan, Jr. (ME), Michael Dukakis (MA), Judd Gregg (NH), Thomas Kean (NJ), Mario Cuomo (NY), Robert Casey (PA), Edward DiPrete (RI) and Madeline Kunin (VT).

At their annual conference in August, the Coalition announced its plans to seek ways to reduce the amount of waste in packaging. At the meeting, the Coalition created a Source Reduction Task Force led by Governors Kean and Kunin. The Task Force will make recommendations to the Governors region-wide, coordinating strategy to reduce the volume of packaging materials entering the waste stream and to increase the use of recyclable and non-toxic materials. Industry has been invited to work closely with the Coalition's Task Force in developing recommendations on opportunities for industry to voluntarily reduce packaging.

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The Task Force objectives are aimed at: reducing the total volume of disposable packaging; increasing the recyclability of packaging products that cannot be reduced; reducing the disposal impact of packaging waste by changing to more environmentally benign packaging material; and increasing the recycled material content of packaging products. It is believed that the group's preliminary report will contain programs to reduce 30 percent or more of the solid waste stream that consists of discarded packaging material. The Task Force will report its preliminary findings to the Governors at their spring seminar on April 6 in Philadelphia.

The Midwest Governor's Task Force on Degradability was formed in March 1988. It is led by Minnesota Governor Rudy Perpich. The Task Force held three meetings and adopted a series of resolutions on November 16 to present to the Midwestern Governors' Conference and the National Governors' Association for further consideration. One resolution calls for studies and research to be conducted on the degradability of certain packaging materials and products and urges Midwestern lawmakers to consider legislation promoting the use of degradable plastics.

A coalition of Washington, D.C.-based trade associations concerned with the solid waste issue has been established called the Packaging Forum. The Forum is designed as an informal network of trade association CEO's and executives who can speak to and commit their associations to positions and actions on developments affecting packaging at the federal, state and local levels. The purpose of the Forum is to provide an opportunity for trade associations to exchange information and to identify and develop joint activities on solid waste issues. The next meeting of the Forum is on April 20 in Washington, D.C.

The American Legislative Exchange Council (ALEC) formed a Solid Waste Task Force to study the solid waste issue and to develop model legislation to promote in the states. The Task Force is using the comprehensive solid waste management legislation enacted in Pennsylvania in 1988, "The Municipal Waste Planning, Recycling and Waste Reduction Act." as a model to work from. The legislation is designed to provide an integrated approach to municipal waste disposal using resource recovery, landfilling and recycling. The legislation places the responsibility for waste planning on the counties and creates a mandatory statewide recycling program for both household and government municipal waste. The Task Force is in the process of amending the legislation for review by the ALEC Task Force on Energy, Environment, and Natural Resources. The ALEC model solid waste bill is expected to be available in April.

In a related matter, ALEC plans to publish a State Factor on municipal solid waste management. The State Factor is ALEC's issue brief series on critical legislative issues.

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The firm denied Kohlberg's allegations in a statement: "We are saddened that Mr. Kohlberg felt it necessary to sue his partners and KKR. We belive he is wrong, both as to the facts and his interpretation of the agreement between us and we fully expect to prevail in court."

The suit comes as Kohlberg Kravis, a superstar in mergers and acquisitions and the leader among leveraged buyout firms, has run into difficulties with some of its properties.

Leveraged buyouts are deals financed mainly with borrowed money that is repaid with the acquired company's cash flow or the sale of its assets.

The firm, whose operations long have been a mystery to the public, reportedly has had trouble selling some of its businesses and several others either are foundering or have been disappointing investments.

For example, New York-based Seaman's Furniture Co., which went private in a $360 million Kohlberg Kravis-engineered LBO two years ago, has said it must renegotiate debt payments, partly because sales growth has not met expectations.

Kohlberg, Kravis and Roberts formed their partnership in 1976, with each of the three serving as general partners who managed the firm and directed its acquisitions and investments.

Kohlberg remained a general partner until 1987, when after a falling-out with Kravis and Roberts over the firm's strategy he became a limited partner, sharing in Kohlberg Kravis' profits but not in its management.

Investor's Daily ★ Thursday, August 31, 1989

CONSUMER BUSINESS

Corporations Begin Cleaning Up Their Acts

▶Wal-Mart Solicits Help, Procter Testing Ways To Recycle Diapers; Arco's New Fuel

By Cathleen Ferraro, *Investor's Daily*

Running a clean business no longer means just keeping the books straight.

Corporations, responding to a groundswell of consumer demand for environmentally compatible products, are starting to make and market goods that promise to keep air, water and land relatively clean.

"Every firm is going to start marketing based on environmental issues in the next five years," predicted Michael Picker, West Coast director of the National Toxics Campaign, a Boston-based citizens group focusing on environmental protection.

Atlantic Richfield's plan to launch a cleaner gasoline has sparked a race among U.S. oil refiners to develop competing fuels. *— See story / page 13*

Already leading the new corporate scramble of the 1990s are such firms as Wal-Mart Stores Inc., Procter & Gamble Co. and Atlantic Richfield Co., as well as some private companies. All are calling for corporations to do more about the environment, and are taking steps on their own.

Wal-Mart, for example, recently approached manufacturers through a newspaper advertisement and private letters to encourage environment-friendly products. The newspaper ad was headlined, "We're looking for quality products that are guaranteed not to last."

The nation's third-largest retailer, Wal-Mart promises to feature new recyclable or reusable products with special shelf tagging, but refuses to say how much space will be dedicated to the improved goods.

"No section of the store can be eliminated or segregated, however," said Wal-Mart spokeswoman Brenda Lockhart. "It will really depend on the manufacturers' response, which has been good so far."

Picker of the National Toxics Campaign said Wal-Mart's drive to offer such products is a major step toward giving the public a chance to make consumer choices based on environmental concerns. But he questioned the depth of the change.

"It's good what Wal-Mart is doing," he said. "It sounds like a great market

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Corporations Begin Cleaning Up Their Acts

From page 1

ing opportunity, too. The real question is, will this solve the pollution problem?"

Perhaps not, he added, because major consumers of these environmentally damaging chemical products are not the public but the manufacturers of durable goods who are way upstream from consumers. "The products themselves are not the problem, but the process of how they are made," he said.

In the letter to producers, Wal-Mart did encourage improvements in manufacturing as well as in use and disposal.

Diapers, a staple good for a retailer like Wal-Mart, and their disposal have been a central topic of debate among retailers and environmental groups. About 43 million disposable diapers are discarded daily.

Procter & Gamble's Compost Plan

Part of the debate focuses on whether a truly biodegradable diaper can be made. But Procter & Gamble, a major manufacturer of household consumer products, scoffs at the importance placed on making a fully biodegradable diaper. It claims that diapers made even of biodegradable substances can't fully break down in traditional landfills, which are unexposed to air and water that faciliate degradation. And even if they could break down, the company argues, biodegradable diapers miss the point.

"Our view is that diapers are such a small part of what goes into a landfill," said company spokesman Scott Stewart. "The problem, therefore, is not diapers but how we manage our solid waste. Biodegradable diapers don't work, and they detract attention from the real solution to the environmental problem, which is throwing away less, recycling and composting."

After spending more than $600 million on research last year, Procter & Gamble will launch two programs in November focused on the composting and recycling of diapers.

In the first program, soiled diapers from St. Paul, Minn., will be collected, added to the company's composter and then evaluated for their composting quality. If that quality proves to be good, the company may encourage using composters instead of common landfills for diaper disposal.

The second program, involving diapers from 1,000 Seattle families, will separate the paper and plastic from the diapers and later convert the materials into park benches, planting pots and cardboard boxes.

But a private California firm, American Enviro Products Inc., stands by the viability of biodegradable diapers.

President Robert Chickering says because his company adds cornstarch to the plastic, the diapers can break down in about 1 ½ years.

"I agree that recycling and composting have to be a part of a sound environmental strategy for the country," he said. "But if the technology is there to make biodegradable diapers, and they do change into water and carbon dioxide, which is not harmful to the environment, then why shouldn't we make them?"

American Enviro was started last January solely to produce the product, and it now sells its diapers in several locations, including Target stores and Lucky Stores Inc.'s Northern California outlets.

On the clean air front, Atlantic Richfield Co. has spent $15 million to $20 million to produce EC-1, a pioneering low-emission fuel.

Scheduled to go on sale in Southern California starting tomorrow, EC-1 is intended to replace leaded fuel used by cars made before 1975 and trucks made before 1980, the two years when pollution-controlling catalytic converters were first required on vehicles.

"Fifteen percent of all cars in Southern California run on these old engines, contributing to 30% of all pollution that cars send out," said Arco spokesman Albert Greenstein.

The biggest advantage to EC-1, he added, is that the low-emission fuel "makes an immediate contribution to cleaning up the air." EC-1 has a head start on other new fuels, such as methanol, which have yet to be mass-marketed and have problems that include eating through conventional gas tanks and plastic engine hoses, another Arco spokesman added.

Safer Inc. Products

Other environmentally safe products include herbicides, pesticides and fungicides made by Safer Inc., a Newton, Mass.-based firm planning to go public within the next three years. Sales this year already have doubled over 1988, signaling both an aggressive ad campaign and consumer acceptance of the goods.

The active ingredient in Safer's products is refined potassium soap that disrupts the cell membranes of soft-bodied insects. Within 48 hours, the soap degrades to carbon dioxide and water, unlike traditional pesticides and insecticides that can take hundreds of years to degrade, according to marketing director Mark Dockser. Accidental swallowing of one of the Safer products, he added, might lead to a severe stomachache, but not hospitalization.

Safer President Craig Taylor predicts 50% of the insecticide market will be served by environmentally compatible products within five years. "And with second- and third-generation patentable technology, we should have an edge on the market," he said.

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August 15, 1989
Vol. 4, No. 13

ENVIRONMENTAL MANAGEMENT NEWS

Dedicated to the Control of Air, Water, Waste Water, Pollution and Hazardous Materials

Reduction, Recycling Top List

Senators work to amend Solid Waste Disposal Act

At least two bills in the Senate seek to amend the Solid Waste Disposal Act of 1965, updating the law to deal with more complex problems.

S. 1112 and S. 1113 are sponsored by Sens. John H. Chaffee, R-R.I., and Max Baucus, D-Mont., respectively, and were presented in June. Only one hearing has been held and that was before the Senate Committee on Environment and Public Works.

"We're consuming more and more disposable products and we're running out of dumps," Baucus told his colleagues. "So it should come as no surprise that we're on the brink of a nationwide solid waste crisis."

Baucus said landfills are filling up and contributing to other contamination problems. "I recently received a letter from a man in Helena, Mont., whose drinking-water well is contaminated by a rural landfill. His water is laced with so many toxins that he is now forced to drink bottled water," he said.

Baucus said strong legislation such as S. 1112 and S. 1113 should be passed so that "no state becomes a dumping ground for the nation" and "so that today's landfills don't become tomorrow's Superfund sites."

Chaffee's Municipal Solid Waste Source Reduction and Recycling Act of 1989 establishes national goals of the following:

- a 10 percent reduction in municipal solid waste by 1993 as a result of source reduction;
- a 25 percent reduction by the same year as a result of recycling; and
- a 50 percent reduction by 1999 as a result of recycling.

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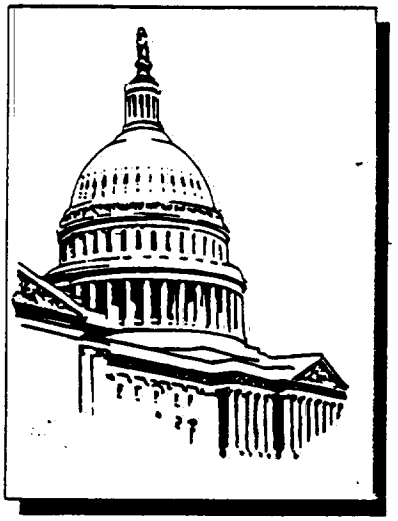

Safe Route Not Followed

The tractor-trailer driver who died in an accident early this month wasn't following a designated route in Dallas, Texas, for hazardous materials transport.

Carrying polypropylene glycol, a non-hazardous substance, and pressurized titanium and hexane trichloride, a flammable and corrosive compound, the tandem trailer careened off an interstate ramp Aug. 1 and killed William Cook, 31, of Garland, Texas.

The routes were established to restrict vehicle traffic in congested and hard-to-reach places (see June 15 EMN). However, the city has had little police manpower to monitor the use of the safe routes by truckers.

After the Aug. 1 mishap, officials shut down central routes and created an early-morning traffic jam.

The polypropylene leaked from one

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Inside

Mission Earth 3
A NASA satellite project could help fill in the scientific gaps for the Earth's climate, land, crops, ocean and forests. All it needs is support from the Bush administration.

Nuclear or No? 6
EMN wants to know what you think about the future of the nuclear power industry.

Real E$tate 7
Better to clean up than wash out when it comes to buying and selling property. An attorney and a soil scientist tell how.

'Biodynamic' Means Magic

The ingredients of a biodynamic compost sound something like a witch's brew and, surprisingly, its magic is just as potent.

Yarrow blossoms aged in a stag bladder, dandelions in cow membrane or winter-seasoned cow manure mixed with 98.6-degree Fahrenheit water all play an important part in the spiritual growing methods.

The parts of the brew and their preparation are supposed to be tuned in to a cosmic frequency that transmutes the materials into helpful or improving products.

About 1,500 gardeners and 100 farms in the United States practice biodynamic methods. They follow the teachings of an Austrian philosopher/scientist who, 65 years ago, believed that certain methods could balance the spiritual and earthly forces in foods. The farms can be found in California, the Midwest and New England.

Biodynamic foods haven't reached the level of popularity in the U.S. that they have in Europe. In that market, biodynamic products bring prices

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Appendix I

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APPENDIX I

RESOURCE ALLOCATIONS

BY

PROGRAM

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STRATEGIC GOAL NUMBER 1

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Operations Support						
Flavor Specs.						
Adhesive Specs.						
Customer Complaints						
Burley Spray						
Packaging/Inks Specs.						
Process Control Monitoring						
Materials Eval.						
Marlboro Standard-ization						
Cigt Beetle Control						
Microbiology						
Alternate Preservatives						
Materials for High Speed Manufacturing						
Robotics						
Research						
ARD	6.60	4.80	5.40	5.80	8.90	6.90
BCR	14.90	14.90	15.10	15.10	15.10	15.10
CR	0.50	0.40	0.40	0.30	0.40	0.50
PR	3.00	3.00	2.00	2.00	2.00	4.00
Process Development						
DE	2.70	2.50	2.50	2.50	2.50	2.50
TF	1.00	3.00	2.50	-	-	-
TM	4.60	5.60	7.10	5.60	5.60	5.60
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	3.60	3.70	3.55	3.65	3.75	3.75
FD	2.70	0.90	1.80	2.80	2.90	3.00
CD	0.50	0.50	0.50	0.50	0.50	0.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	2.45	2.15	2.15	2.35	2.35	2.35
Total Direct	42.55	41.45	43.00	40.60	44.00	44.20
Total Support	34.45	34.40	36.65	36.10	38.60	38.15
TOTAL	**77.00**	**75.85**	**79.65**	**76.70**	**82.60**	**82.35**

2021391350

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Project Tomorrow						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	0.20	1.00	1.00	0.50	0.20	0.20
PR	2.50	2.50	4.00	5.50	4.50	2.50
Process Development						
DE	-	-	-	-	-	-
TF	-	0.30	0.50	0.50	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.35	0.55	0.75	0.75	0.75	0.75
FD	-	-	0.20	0.20	0.20	-
CD	1.00	1.50	1.50	1.50	1.50	1.00
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	0.10	0.10	0.10	0.10	0.10	0.10
TI	-	-	-	-	-	-
Total Direct	4.15	5.95	8.05	9.05	7.25	4.55
Total Support	3.80	4.50	7.00	8.20	6.85	4.45
TOTAL	**7.95**	**10.45**	**15.05**	**17.25**	**14.10**	**9.00**

2021391351

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Reduced Density Rod						
Research						
ARD	1.10	-	-	-	-	-
BCR	0.55	-	-	-	-	-
CR	0.10	-	-	-	-	-
PR	1.00	-	-	-	-	-
Process Development						
DE	0.50	-	-	-	-	-
TF	11.30	-	-	-	-	-
TM	1.20	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.25	-	-	-	-	-
FD	-	-	-	-	-	-
CD	0.50	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	16.50	-	-	-	-	-
Total Support	4.85	-	-	-	-	-
TOTAL	**21.35**					

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Optical Processing						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	5.50	5.50	6.00	5.00	5.00	5.50
Process Development						
DE	0.20	2.50	2.00	1.00	1.00	1.00
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.50	0.50	0.50	0.50	0.50	0.50
Total Direct	6.20	8.50	8.50	6.50	6.50	7.00
Total Support	2.20	2.65	2.75	2.30	2.30	2.45
TOTAL	**8.40**	**11.15**	**11.25**	**8.80**	**8.80**	**9.45**

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Tamper Evident Packaging						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	0.10	0.30	1.00	1.00	0.50	0.10
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.05	0.20	0.20	0.45	0.45	0.45
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	0.15	0.50	1.20	1.45	0.95	0.55
Total Support	0.00	0.10	0.25	0.35	0.25	0.10
TOTAL	**0.15**	**0.60**	**1.45**	**1.80**	**1.20**	**0.65**

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Project Natural						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	1.0	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	0.20	0.20	0.20	-	-	-
CD	0.50	0.50	0.50	0.50	0.50	0.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	0.70	1.70	0.70	0.50	0.50	0.50
Total Support	1.35	2.30	1.30	1.00	1.00	0.95
TOTAL	2.05	4.00	2.00	1.50	1.50	1.45

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(Continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Second Generation DIET						
Research						
ARD	1.10	1.60	2.00	2.00	2.00	2.00
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	0.50	0.50	0.50	0.50	0.50
TF	-	6.20	4.00	4.50	5.00	5.00
TM	2.70	1.00	2.00	2.00	2.00	2.00
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	0.55	1.55	1.55	1.30	1.30	1.30
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.25	0.25	0.25	0.25	0.25	0.25
Total Direct	4.60	11.10	10.30	10.55	11.05	11.05
Total Support	3.05	6.45	7.15	7.45	8.60	8.70
TOTAL	**7.65**	**17.55**	**17.45**	**18.00**	**19.65**	**19.75**

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
ART Support (Current Product)						
Research						
ARD	19.00	18.10	15.10	12.10	5.00	5.00
BCR	1.45	0.40	-	-	-	-
CR	0.20	0.30	0.10	-	-	-
PR	2.50	1.50	1.50	1.50	1.50	1.50
Process Development						
DE	2.00	2.00	0.50	0.50	-	-
TF	-	-	-	-	-	-
TM	9.30	5.30	4.30	5.30	5.50	5.50
TP&F	-	-	-	-	-	-
Product Development						
PED	2.50	2.50	1.50	-	-	-
CTECH	-	-	-	-	-	-
FD	1.00	0.75	0.25	0.25	0.25	0.10
CD	-	-	0.50	0.50	0.50	0.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	37.95	30.85	23.75	20.15	12.75	12.60
Total Support	13.45	11.65	9.30	8.00	5.05	5.00
TOTAL	**51.40**	**42.50**	**33.05**	**28.15**	**17.80**	**17.60**

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Environmental Issues						
Project Grain						
Nicotine Destruction						
Biodegradability						
Research						
ARD	0.10	0.10	1.00	2.00	3.00	3.10
BCR	-	-	0.50	1.00	1.50	2.00
CR	1.00	2.00	1.00	1.00	1.00	1.00
PR	-	-	-	-	-	-
Process Development						
DE	1.00	1.00	1.00	1.00	1.00	1.00
TF	-	-	-	-	-	-
TM	-	1.00	1.00	1.00	1.00	1.00
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	0.35	0.20	0.10	0.20	0.20	0.20
CD	0.25	0.25	0.50	0.50	0.50	0.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	2.70	4.55	5.10	6.70	8.20	8.80
Total Support	1.05	1.65	1.95	2.55	3.05	3.25
TOTAL	**3.75**	**6.20**	**7.05**	**9.25**	**11.25**	**12.05**

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

(continued)

Aggressively Support The Current Business

Direct

Program	Current	1990	1991	1992	1993	1994
Cast Sheet RCB						
Research						
ARD	-	1.30	1.60	1.20	1.10	1.10
BCR	-	-	-	-	-	-
CR	-	0.10	0.10	0.20	0.10	-
PR	-	-	-	-	-	-
Process Development						
DE	-	0.50	0.50	0.50	-	-
TF	-	-	-	-	-	-
TM	-	4.20	4.00	5.00	5.00	5.00
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	0.30	0.50	0.40	0.30	0.30
FD	-	0.70	1.10	1.00	0.90	0.90
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	-	7.10	7.80	8.30	7.40	7.30
Total Support	-	2.55	3.25	3.30	3.00	3.00
TOTAL		**9.65**	**11.05**	**11.60**	**10.40**	**10.30**

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Direct

Program	Current	1990	1991	1992	1993	1994
Project DELTA/Sigma/ Beta						
Research						
ARD	1.10	2.00	2.00	3.00	3.00	4.00
BCR	0.05	0.05	0.05	0.05	0.05	0.05
CR	-	-	-	-	-	-
PR	14.00	14.00	14.00	14.00	14.00	12.00
Process Development						
DE	2.00	2.00	2.00	2.00	2.00	2.00
TF	2.20	2.50	3.00	4.50	4.50	4.50
TM	0.40	0.20	0.20	0.20	0.20	0.20
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	11.05	11.00	12.00	12.75	12.75	12.75
FD	1.55	2.50	2.00	1.00	0.50	0.10
CD	-	-	0.25	0.25	0.25	0.75
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	1.10	1.10	1.10	1.10	1.10	1.10
Total Direct	33.45	35.35	36.60	38.85	38.35	37.45
Total Support	8.35	8.70	9.30	10.05	9.85	9.70
TOTAL	**41.80**	**44.05**	**45.90**	**48.90**	**48.20**	**47.15**

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2

(continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Direct

Program	Current	1990	1991	1992	1993	1994
Project ART (Optimize product/process; water column)						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	2.00	2.00	1.50	1.50	1.50	1.50
PR	1.00	1.00	1.00	1.00	1.00	1.00
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	14.80	13.90	12.60	11.60	11.40	11.40
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.60	0.60	-	-	-	-
FD	2.60	2.00	1.00	1.00	0.50	0.10
CD	1.00	1.00	0.50	0.50	0.50	0.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.45	0.45	0.45	0.45	0.45	0.45
Total Direct	22.45	20.95	17.05	16.05	15.35	14.95
Total Support	20.75	19.45	16.05	15.55	15.05	14.70
TOTAL	43.20	40.40	33.10	31.60	30.40	29.65

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2

(continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Direct

Program	Current	1990	1991	1992	1993	1994
TSNA						
Research						
ARD	-	-	-	-	-	-
BCR	15.20	15.20	15.20	15.10	10.50	8.50
CR	1.00	1.00	1.00	1.00	1.00	1.00
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	0.10	-	0.50	-	0.50	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	0.25	0.25	0.25	0.25
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.10	0.10	0.10	0.10	0.10	0.10
Total Direct	16.40	16.30	17.05	16.45	12.35	9.85
Total	3.30	3.30	3.55	3.55	2.60	2.10
TOTAL	19.70	19.60	20.60	20.00	14.95	11.95

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2

(continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Direct

Program	Current	1990	1991	1992	1993	1994
LBA						
Research						
ARD	0.50	0.50	0.50	1.00	1.00	1.00
BCR	13.55	13.65	13.65	14.65	16.65	17.45
CR	1.00	1.00	1.00	1.00	1.00	1.00
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	0.20	0.50	-	0.50	-	0.50
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	0.25	0.25	0.25	0.25
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.40	0.40	0.40	0.40	0.40	0.40
Total Direct	15.65	16.05	15.80	17.80	19.30	20.60
Total Support	3.15	3.30	3.25	3.80	4.15	4.35
TOTAL	18.80	19.35	19.05	21.60	23.45	24.95

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2

(continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Direct

Program	Current	1990	1991	1992	1993	1994
Selective Filtration						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	0.50	1.50	1.50	1.50	1.50	2.00
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	0.30	0.30	0.80	0.80	0.80
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.40	0.40	0.50	0.50	0.50	0.50
FD	-	-	0.20	0.20	0.20	0.20
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	0.90	2.20	2.50	3.00	3.00	3.50
Total Support	0.35	0.50	0.75	0.85	0.85	0.95
TOTAL	**1.25**	**2.70**	**3.25**	**3.85**	**3.85**	**4.45**

2021391364

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2

(continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Direct

Program	Current	1990	1991	1992	1993	1994
Supercritical Technology (Compounds other than nicotine; SCFE Support)						
Research						
ARD	3.30	4.40	6.40	5.40	7.00	7.40
BCR	0.50	1.00	1.00	1.00	2.00	2.00
CR	-	-	-	-	-	-
PR	1.50	2.50	3.50	4.50	5.50	5.50
Process Development						
DE	0.10	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	5.40	7.90	10.90	10.90	14.50	14.90
Total Support	1.10	2.50	3.70	3.90	5.25	5.45
TOTAL	**6.50**	**10.40**	**14.60**	**14.80**	**19.75**	**20.35**

2021391365

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Direct

Program	Current	1990	1991	1992	1993	1994
Reduced Sidestream						
Research						
ARD	6.00	6.00	3.00	2.00	1.00	-
BCR	0.50	0.60	1.00	2.00	2.00	2.00
CR	15.50	15.70	13.90	13.00	13.00	13.00
PR	-	-	-	-	-	-
Process Development						
DE	0.50	0.50	0.50	0.50	0.50	0.50
TF	-	-	-	-	-	-
TM	4.00	3.00	3.00	3.00	3.00	3.00
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	4.05	4.05	4.05	4.15	4.15	4.15
FD	1.55	0.75	0.55	0.25	0.25	0.25
CD	0.50	0.50	0.75	0.75	0.75	0.75
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	0.30	0.30	0.30	0.30	0.30	0.30
TI	-	-	-	-	-	-
Staff & TA	1.00	1.00	1.00	1.00	1.00	1.00
Total Direct	33.90	32.40	28.05	26.95	25.95	24.95
Total Support	12.05	11.70	10.70	10.60	10.15	9.75
TOTAL	**45.95**	**44.10**	**38.75**	**37.55**	**36.10**	**34.70**

2021391366

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3

(continued)

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Direct

Program	Current	1990	1991	1992	1993	1994
Project Ambrosia Ash Tray Odor						
Research						
ARD	0.50	0.50	-	-	-	-
BCR	-	-	-	-	-	-
CR	1.50	1.00	1.00	0.20	0.20	0.20
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	0.50	0.50	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	1.55	1.00	0.50	0.15	0.15	0.15
FD	0.65	0.75	0.65	0.40	0.15	-
CD	1.00	1.00	1.00	0.50	0.50	0.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	5.20	4.75	3.65	1.25	1.00	0.85
Total Support	4.15	3.65	3.15	1.45	1.20	0.90
TOTAL	9.35	8.40	6.80	2.70	2.20	1.75

2021391367

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3

(continued)

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Direct

Program	Current	1990	1991	1992	1993	1994
ETS						
Research						
ARD	3.80	6.00	6.00	5.00	2.00	2.00
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	0.20	0.25	0.25	0.25	0.25	0.25
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	4.00	6.25	6.25	5.25	2.25	2.25
Total Support	0.70	1.25	1.25	1.10	0.45	0.45
TOTAL	**4.70**	**7.50**	**7.50**	**6.35**	**2.70**	**2.70**

2021391368

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3

(continued)

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Direct

Program	Current	1990	1991	1992	1993	1994
Project PACT						
Research						
ARD	2.20	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	2.00	2.00	2.00	1.00	1.00	1.00
TF	-	-	-	-	-	-
TM	1.00	1.00	1.00	1.00	1.00	1.00
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	1.00	1.00	1.00	1.00	1.00	1.00
Total Direct	6.20	4.00	4.00	3.00	3.00	3.00
Total Support	1.25	0.70	0.80	0.60	0.60	0.60
TOTAL	7.45	4.70	4.80	3.60	3.60	3.60

2021391369

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Direct

Program	Current	1990	1991	1992	1993	1994
Menthol						
Research						
ARD	0.10	0.10	1.00	1.00	1.00	1.00
BCR	-	-	-	-	-	-
CR	1.00	1.00	0.50	0.50	0.50	0.50
PR	1.50	0.50	-	-	-	-
Process Development						
DE	0.25	0.25	0.25	0.25	0.25	0.25
TF	0.50	1.00	1.50	2.00	2.00	2.00
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.95	0.30	0.30	0.30	0.30	0.30
FD	0.80	1.00	2.00	2.00	2.35	2.60
CD	0.50	0.50	0.50	0.50	0.50	0.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	5.60	4.65	6.05	6.55	6.90	7.15
Total Support	5.70	5.20	6.10	6.50	6.90	7.30
TOTAL	11.30	9.85	12.15	13.05	13.80	14.45

2021391370

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4

(continued)

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Direct

Program	Current	1990	1991	1992	1993	1994
Low Tar/High Flavor						
Research						
ARD	-	-	1.00	1.00	2.00	2.00
BCR	1.10	1.10	1.00	1.00	1.00	1.00
CR	3.00	2.50	2.50	2.00	2.00	2.00
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	1.50	1.50	1.25	1.25	1.00	1.00
FD	2.15	2.00	2.35	2.85	3.25	3.25
CD	2.00	2.00	2.00	2.00	2.00	2.00
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	9.75	9.10	10.10	10.10	11.25	11.25
Total Support	6.65	6.40	7.15	7.45	7.85	7.85
TOTAL	16.40	15.50	17.25	17.55	19.10	19.10

2021391371

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4

(continued)

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Direct

Program	Current	1990	1991	1992	1993	1994
Domestic Product Support						
Research						
ARD	1.10	1.10	1.00	2.00	1.00	1.00
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	0.50	1.00	1.50	1.50	1.50	1.50
TM	1.60	4.00	5.00	5.00	5.00	5.00
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	1.75	1.85	1.85	2.85	3.10	3.10
FD	3.05	3.05	4.15	4.55	5.05	5.05
CD	3.25	3.25	4.00	4.50	4.50	4.50
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.70	0.70	0.70	0.70	0.70	0.70
Total Direct	11.95	14.95	18.20	21.10	20.85	20.85
Total Support	31.85	34.15	38.95	44.60	45.35	45.20
TOTAL	**43.80**	**49.10**	**57.15**	**65.70**	**66.20**	**66.05**

20213913772

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4

(continued)

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Direct

Program	Current	1990	1991	1992	1993	1994
Filter Research						
Research						
ARD	1.10	1.10	1.00	2.00	1.00	1.00
BCR	-	-	-	-	-	-
CR	-	0.50	1.50	1.50	1.50	1.50
PR	2.50	2.50	2.50	2.50	2.50	3.00
Process Development						
DE	1.00	0.25	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	1.00	1.00	1.00	1.00	1.00	1.00
FD	0.30	0.30	0.30	0.30	0.30	0.30
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	0.30	0.30	0.10	0.10	0.10	0.05
TI	-	-	-	-	-	-
Total Direct	6.20	5.95	6.40	7.40	6.40	6.85
Total Support	6.15	5.80	6.35	7.25	6.25	6.65
TOTAL	12.35	11.75	12.75	14.65	12.65	13.50

2021391373

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5

Identify New Product/Process Concepts And Develop Products/Processes For The International Market

Direct

Program	Current	1990	1991	1992	1993	1994
International Product Support						
Research						
ARD	2.40	2.50	3.00	3.50	4.00	4.50
BCR	0.10	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	0.50	1.00	1.00	1.00	1.00	1.00
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	1.40	1.30	1.30	1.80	2.30	2.30
FD	2.10	1.95	2.00	3.00	4.00	4.50
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.30	0.30	0.30	0.30	0.30	0.30
Total Direct	6.80	7.05	7.60	9.60	11.60	12.60
Total Support	17.55	17.30	18.55	20.70	22.65	23.90
TOTAL	24.35	24.35	26.15	30.30	34.25	36.50

2021391374

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5

(continued)

Identify New Product/Process Concepts And Develop Products/Processes For The International Market

Direct

Program	Current	1990	1991	1992	1993	1994
TMCI BL Process Development						
Research						
ARD	0.10	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	1.10	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	0.05	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	1.25	-	-	-	-	-
Total Support	0.25	-	-	-	-	-
TOTAL	1.50					

2021391375

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5

(continued)

Identify New Product/Process Concepts And Develop Products/Processes For The International Market

Direct

Program	Current	1990	1991	1992	1993	1994
Reduced Tar & Nicotine						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.50	0.50	0.50	0.50	0.50	0.50
FD	0.20	0.20	0.20	0.20	0.20	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	0.70	0.70	0.70	0.70	0.70	0.50
Total Support	1.35	1.35	1.35	1.35	1.35	1.25
TOTAL	2.05	2.05	2.05	2.05	2.05	1.75

2021391376

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5

(continued)

Identify New Product/Process Concepts And Develop
Products/Processes For The International Market

Program	Current	1990	1991	1992	1993	1994
Filter Research						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	3.00	3.50	3.50	3.50	4.00	4.00
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	3.00	3.50	3.50	3.50	4.00	4.00
Total Support	2.30	2.65	2.75	2.75	3.15	3.10
TOTAL	5.30	6.15	6.25	6.25	7.15	7.10

2021391377

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Combustion Research*						
Mass Burn Control						
Project Tomorrow						
Pyrolysis Temperature Control						
Cigarette With Low						
Burn Temperature						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	0.50	1.00	1.00	1.50
CR	-	0.20	1.00	2.80	3.00	4.00
PR	1.50	1.50	2.50	2.50	2.00	2.00
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.10	0.10	0.10	0.10	0.10	0.10
Total Direct	1.60	1.80	4.10	6.40	6.10	7.60
Total Support	0.35	0.35	0.85	1.30	1.30	1.55
TOTAL	**1.95**	**2.15**	**4.95**	**7.70**	**7.40**	**9.15**

2021391378

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Flavors*						
Thermal Flavor-Release						
Sigma/Beta						
Ambrosia						
Flavor Formation Studies						
Cigarette With Low						
Burn Temperature						
Fragrances						
Ambrosia						
Volatile Flavors						
Cigarette with No ETS						
Research						
ARD	1.10	1.10	3.00	4.00	5.00	5.00
BCR	-	-	-	-	-	-
CR	2.10	1.60	3.70	4.90	5.10	5.00
PR	-	-	-	-	-	-
Process Development						
DE	1.00	1.00	0.25	0.25	0.25	0.25
TF	-	0.50	1.50	2.00	2.00	2.00
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.20	0.45	0.45	0.20	0.20	0.20
FD	2.20	2.20	2.40	2.50	2.50	3.15
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	6.60	6.85	11.30	13.85	15.05	15.60
Total Support	1.25	1.35	2.30	2.85	3.10	3.20
TOTAL	7.85	8.20	13.60	16.70	18.15	18.80

2021391379

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Aerosols*						
Formation Mechanisms						
Sigma/Beta						
Reduced Sidestream						
Cigarette with Low Combustion Temp.						
Short Lived Aerosols						
Cigarette with No ETS						
Selective Filtration						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	0.30	0.10	0.30	0.10	0.50	0.50
PR	2.00	2.00	2.00	2.00	2.00	2.00
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.30	0.30	0.30	0.30	0.30	0.30
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.10	0.10	0.10	0.10	0.10	0.10
Total Direct	2.70	2.50	2.70	2.50	2.90	2.90
Total Support	1.00	0.80	0.90	0.90	1.05	1.05
TOTAL	3.70	3.30	3.60	3.40	3.95	3.95

2021391380

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Selective Separations*						
Supercritical Fluids						
Project ART						
TSNA						
Membrane Separation						
Cigarette With Low Burn Temperature						
Project ART						
Research						
ARD	1.10	2.10	2.00	3.00	4.00	3.00
BCR	0.50	0.50	0.10	0.10	0.10	0.10
CR	0.30	0.30	0.50	0.50	0.50	1.50
PR	-	-	0.50	1.00	1.50	2.00
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.10	0.10	0.10	0.10	0.10	0.10
Total Direct	2.00	3.00	3.20	4.70	6.20	6.70
Total Support	0.35	0.60	0.65	0.95	1.30	1.40
TOTAL	2.35	3.60	3.85	5.65	7.50	8.10

2021391381

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Consumer Testing Res.*						
Regression-Based Modelling of Liking						
Stochastic Discrimination Models						
Cost/Benefit Evaluation						
Quantitative Modelling of Market Dynamics						
Research						
ARD	-	-	-	-	-	-
BCR	2.00	2.00	2.00	2.00	2.00	2.00
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	2.50	3.50	3.50	4.00	4.00	5.00
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total direct	4.50	5.50	5.50	6.00	6.00	7.00
Total Support	1.20	1.10	1.40	1.50	1.50	1.75
TOTAL	5.70	6.60	6.90	7.50	7.50	8.75

2021391382

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Measurement & Sensing of Physical & Chemical Characteristics*						
Process Control Systems						
Optical Processing						
Project ART						
Adhesive Application						
Research						
ARD	0.50	0.50	1.00	2.00	4.00	4.00
BCR	-	-	-	-	-	-
CR	1.20	1.00	1.00	1.00	1.00	0.50
PR	-	1.00	1.00	1.00	1.00	1.00
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Staff & TA	0.10	0.10	0.10	0.10	0.10	0.10
Total Direct	1.80	2.60	3.10	4.10	6.10	5.60
Total Staff	0.35	0.50	0.60	0.85	1.30	1.00
TOTAL	2.15	3.10	3.70	4.95	7.40	6.60

2021391383

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Biological*						
Antibodies						
New Analytical Methods						
Biosensors						
Process Control Systems						
Research						
ARD	1.20	1.20	2.00	2.00	2.00	2.00
BCR	2.60	2.60	2.90	3.00	5.10	5.30
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	3.80	3.80	4.90	5.00	7.10	7.30
Total Support	0.70	0.70	0.95	1.05	1.45	1.65
TOTAL	**4.50**	**4.50**	**5.85**	**6.05**	**8.55**	**8.95**

2021391384

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Computing Systems*						
Expert Systems and Neural Networks Process Control Optical Computing QA Inspection						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	0.10	0.10	0.10	0.10	0.10	0.10
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	0.50	0.50	0.50	0.50	0.50	0.50
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	2.70	2.70	3.30	3.50	3.50	3.50
TI	-	-	-	-	-	-
Staff & TA	0.35	0.35	0.35	0.35	0.35	0.35
Total Direct	3.65	3.65	4.25	4.45	4.45	4.45
Total Support	0.70	0.70	0.85	0.95	0.95	0.95
TOTAL	4.35	4.35	5.10	5.40	5.40	5.40

2021391385

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Direct

Program	Current	1990	1991	1992	1993	1994
Basic Analytical Research						
New Analytical Methods						
Research						
ARD	-	-	-	-	2.00	4.00
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	-	-
TI	-	-	-	-	-	-
Total Direct	-	-	-	-	2.00	4.00
Total Support	-	-	-	-	0.35	0.80
TOTAL	-	-	-	-	2.35	4.80

2021391386

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Operations Support						
Flavor Specs.						
Adhesive Specs.						
Customer Complaints						
Burley Spray						
Packaging/Inks Specs.						
Process Control Monitoring						
Materials Eval.						
Marlboro Standard-ization						
Cigt Beetle Control						
Microbiology						
Alternate Preservatives						
Materials for High Speed Manufacturing						
Robotics						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	17.80	17.90	19.10	18.70	20.00	20.10
Product Development						
PED	2.30	2.10	2.45	2.90	2.90	2.75
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	3.60	3.50	3.70	3.50	3.85	3.70
CTEST	5.50	6.00	6.40	6.20	6.60	6.50
CAD	3.85	3.60	3.70	3.50	3.85	3.70
TI	1.40	1.30	1.30	1.30	1.40	1.40
Total Support	34.45	34.40	36.65	36.10	38.60	38.15

2021391387

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Project Tomorrow						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	0.65	0.65	1.10	1.40	1.15	0.70
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.90	1.30	2.00	2.30	1.90	1.20
Product Development						
PED	0.45	0.50	0.85	0.90	0.85	0.60
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.35	0.40	0.65	0.80	0.65	0.40
CTEST	1.00	1.00	1.50	1.70	1.40	1.00
CAD	0.35	0.45	0.65	0.80	0.65	0.40
TI	0.10	0.20	0.25	0.30	0.25	0.15
Total Support	3.80	4.50	7.00	8.20	6.85	4.45

2021391388

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Reduced Density Rod						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.90	-	-	-	-	-
Product Development						
PED	0.25	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	1.30	-	-	-	-	-
CTEST	0.50	-	-	-	-	-
CAD	1.35	-	-	-	-	-
TI	0.55	-	-	-	-	-
Total Support	4.85					

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STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Optical Processing						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	1.00	1.00	1.10	1.00	1.00	1.00
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.50	0.70	0.70	0.55	0.55	0.60
CTEST	-	-	-	-	-	-
CAD	0.50	0.70	0.70	0.55	0.55	0.60
TI	0.20	0.25	0.25	0.20	0.20	0.25
Total Support	2.20	2.65	2.75	2.30	2.30	2.45

2021391390

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Tamper Evident Packaging						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	0.05	0.10	0.15	0.10	0.05
CTEST	-	-	-	-	-	-
CAD	-	0.05	0.10	0.15	0.10	0.05
TI	-	-	0.05	0.05	0.05	-
Total Support	-	0.10	0.25	0.35	0.25	0.10

2021391391

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Project Natural						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.50	1.30	0.50	0.40	0.40	0.40
Product Development						
PED	0.25	0.25	0.25	0.20	0.20	0.20
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.05	0.10	0.05	0.05	0.05	0.05
CTEST	0.50	0.50	0.40	0.30	0.30	0.30
CAD	0.05	0.10	0.05	0.05	0.05	0.05
TI	-	0.05	0.05	-	-	-
Total Support	1.35	2.30	1.30	1.00	1.00	1.00

2021391392

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1

Aggressively Support The Current Business

Program	Current	1990	1991	1992	1993	1994
Second Generation DIET						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	0.75	1.30	1.55	1.75	1.90	2.00
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.70	1.90	2.00	2.10	2.20	2.20
Product Development						
PED	0.20	0.50	0.55	0.45	0.45	0.45
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.35	0.90	0.85	0.90	0.95	0.95
CTEST	0.50	0.50	1.00	1.00	1.80	1.80
CAD	0.40	1.00	0.95	0.90	0.95	0.95
TI	0.15	0.35	0.25	0.35	0.35	0.35
Total Support	3.05	6.45	7.15	7.45	8.60	8.70

2021391393

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
ART Support (Current Product)						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	2.70	2.40	1.90	1.60	1.00	1.00
Product Development						
PED	0.35	0.25	0.25	0.25	0.25	0.20
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	3.00	2.45	1.95	1.75	1.10	1.10
CTEST	3.00	3.00	2.40	2.00	1.20	1.20
CAD	3.15	2.55	2.05	1.75	1.10	1.10
TI	1.25	1.00	0.75	0.65	0.40	0.40
Total Support	13.45	11.65	9.30	8.00	5.05	5.00

20213913394

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Environmental Issues						
Project Grain						
Nicotine Destruction						
Biodegradability						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.30	0.60	0.70	0.90	1.10	1.20
Product Development						
PED	0.20	0.15	0.25	0.25	0.25	0.25
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.20	0.35	0.40	0.60	0.70	0.75
CTEST	-	-	-	-	-	-
CAD	0.25	0.40	0.45	0.60	0.70	0.75
TI	0.10	0.15	0.15	0.20	0.30	0.30
Total Support	1.05	1.65	1.95	2.55	3.05	3.25

2021391395

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 1
(Continued)

Aggressively Support The Current Business

Support

Program	Current	1990	1991	1992	1993	1994
Cast Sheet RCB						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	0.70	1.00	1.00	1.00	1.00
Product Development						
PED	-	0.15	0.15	0.15	0.15	0.15
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	0.55	0.65	0.75	0.65	0.65
CTEST	-	0.30	0.50	0.40	0.30	0.30
CAD	-	0.65	0.70	0.75	0.65	0.65
TI	-	0.20	0.25	0.25	0.25	0.25
Total Support		2.55	3.25	3.30	3.00	3.00

20213913396

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Support

Program	Current	1990	1991	1992	1993	1994
Project DELTA/Sigma/ Beta						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.80	0.90	0.90	1.00	1.00	1.00
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	2.70	2.80	3.10	3.40	3.30	3.25
CTEST	1.00	1.00	1.00	1.00	1.00	1.00
CAD	2.75	2.90	3.20	3.40	3.30	3.25
TI	1.10	1.10	1.10	1.25	1.25	1.20
Total Support	8.35	8.70	9.30	10.05	9.85	9.70

20213913397

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2
(Continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Support

Program	Current	1990	1991	1992	1993	1994
Project ART (Optimize product/process; water column)						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	3.65	2.45	2.35	2.40	2.40	2.40
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	10.80	11.20	9.30	8.80	8.60	8.50
Product Development						
PED	1.40	1.20	0.55	0.55	0.35	0.20
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	1.80	1.65	1.40	1.40	1.35	1.30
CTEST	0.50	0.50	0.50	0.50	0.50	0.50
CAD	1.90	1.75	1.45	1.40	1.35	1.30
TI	0.70	0.70	0.50	0.50	0.50	0.50
Total Support	20.75	19.45	16.05	15.55	15.05	14.70

20213913398

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2
(Continued)

Develop Products Which Address The Consumers' Desire
To Reduce Their Health Concerns

Support

Program	Current	1990	1991	1992	1993	1994
TSNA						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.10	0.10	0.10	0.10	0.10	0.10
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	1.30	1.30	1.45	1.45	1.05	0.85
CTEST	-	-	-	-	-	-
CAD	1.40	1.40	1.50	1.45	1.05	0.85
TI	0.50	0.50	0.50	0.55	0.40	0.30
Total Support	3.30	3.30	3.55	3.55	2.60	2.10

2021391399

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2
(Continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Support

Program	Current	1990	1991	1992	1993	1994
LBA						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.10	0.10	0.10	0.10	0.10	0.10
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	1.25	1.30	1.30	1.55	1.70	1.80
CTEST	-	-	-	-	-	-
CAD	1.30	1.35	1.35	1.55	1.70	1.80
TI	0.50	0.55	0.50	0.60	0.65	0.65
Total Support	3.15	3.30	3.25	3.80	4.15	4.35

2021391400

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2
(Continued)

Develop Products Which Address The Consumers' Desire
To Reduce Their Health Concerns

Support

Program	Current	1990	1991	1992	1993	1994
Selective Filtration						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	0.15	0.15	0.25	0.25	0.25	0.25
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.05	0.15	0.20	0.25	0.25	0.30
CTEST	-	-	-	-	-	-
CAD	0.10	0.15	0.20	0.25	0.25	0.30
TI	0.05	0.05	0.10	0.10	0.10	0.10
Total Support	0.35	0.50	0.75	0.85	0.85	0.95

2021391401

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 2
(Continued)

Develop Products Which Address The Consumers' Desire To Reduce Their Health Concerns

Support

Program	Current	1990	1991	1992	1993	1994
Supercritical Technology (Compounds other than nicotine; SCFE Support)						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	0.90	1.50	1.65	2.30	2.35
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.45	0.65	0.90	0.95	1.25	1.30
CTEST	-	-	-	-	-	-
CAD	0.50	0.70	0.95	0.95	1.25	1.30
TI	0.15	0.25	0.35	0.35	0.45	0.50
Total Support	1.10	2.50	3.70	3.90	5.25	5.45

2021391402

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Support

Program	Current	1990	1991	1992	1993	1994
Reduced Sidestream						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	2.90	3.10	2.70	2.60	2.50	2.40
Product Development						
PED	2.05	1.75	1.85	1.85	1.80	1.70
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	2.70	2.60	2.35	2.35	2.25	2.15
CTEST	0.50	0.50	0.50	0.50	0.50	0.50
CAD	2.85	2.75	2.45	2.35	2.25	2.15
TI	1.05	1.00	0.85	0.95	0.85	0.85
Total Support	12.05	11.70	10.70	10.60	10.15	9.75

2021391403

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3
(Continued)

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Support

Program	Current	1990	1991	1992	1993	1994
Project Ambrosia Ash Tray Odor						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	0.85	0.55	0.50	0.20	0.15	0.15
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.20	0.20	0.20	0.10	0.10	0.10
Product Development						
PED	1.10	0.90	0.75	0.40	0.30	0.20
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.40	0.40	0.30	0.10	0.10	0.05
CTEST	1.00	1.00	1.00	0.50	0.40	0.30
CAD	0.45	0.45	0.30	0.10	0.10	0.05
TI	0.15	0.15	0.10	0.05	0.05	0.05
Total Support	4.15	3.65	3.15	1.45	1.20	0.90

2021391404

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3
(Continued)

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Support

Program	Current	1990	1991	1992	1993	1994
ETS						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.30	0.50	0.50	0.45	0.20	0.20
CTEST	-	-	-	-	-	-
CAD	0.30	0.55	0.55	0.45	0.20	0.20
TI	0.10	0.20	0.20	0.20	0.05	0.05
Total Support	0.70	1.25	1.25	1.10	0.45	0.45

2021391405

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 3
(Continued)

Develop New Products which Address the Publics' Desire to Reduce Environmental Tobacco Smoke

Support

Program	Current	1990	1991	1992	1993	1994
Project PACT						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.50	0.30	0.35	0.25	0.25	0.25
CTEST	-	-	-	-	-	-
CAD	0.55	0.30	0.35	0.25	0.25	0.25
TI	0.20	0.10	0.10	0.10	0.10	0.10
Total Support	1.25	0.70	0.80	0.60	0.60	0.60

2021391406

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Support

Program	Current	1990	1991	1992	1993	1994
Menthol						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.80	0.70	0.90	1.00	1.10	1.20
Product Development						
PED	0.75	0.60	1.00	1.00	1.00	1.15
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.45	0.35	0.50	0.55	0.60	0.60
CTEST	3.00	3.00	3.00	3.20	3.40	3.50
CAD	0.50	0.40	0.55	0.55	0.60	0.60
TI	0.20	0.15	0.15	0.20	0.20	0.25
Total Support	5.70	5.20	6.10	6.50	6.90	7.30

2021391407

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4
(Continued)

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Support

Program	Current	1990	1991	1992	1993	1994
Low Tar/High Flavor						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.80	0.80	0.90	0.90	1.00	1.00
Product Development						
PED	1.90	1.85	2.00	2.20	2.20	2.20
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.80	0.70	0.85	0.90	0.95	0.95
CTEST	2.00	2.00	2.20	2.20	2.40	2.40
CAD	0.85	0.75	0.90	0.90	0.95	0.95
TI	0.30	0.30	0.30	0.35	0.35	0.35
Total Support	6.65	6.40	7.15	7.45	7.85	7.85

2021391408

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4
(Continued)

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Support

Program	Current	1990	1991	1992	1993	1994
Domestic Product Support						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	1.90	1.80	2.50	3.20	3.30	3.30
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	4.70	6.50	8.00	9.10	9.10	9.20
Product Development						
PED	8.95	8.80	9.90	11.70	11.95	11.75
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.95	1.15	1.50	1.90	1.80	1.80
CTEST	14.00	14.20	14.90	16.10	16.70	16.70
CAD	1.00	1.25	1.60	1.90	1.80	1.80
TI	0.35	0.45	0.55	0.70	0.70	0.65
Total Support	31.85	34.15	38.95	44.60	45.35	45.20

2021391409

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 4
(continued)

Develop Products Which Increase Our Volume At The Expense Of Our Competitors To Give Us Our "Fair Share"

Support

Program	Current	1990	1991	1992	1993	1994
Filter Research						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	1.00	0.70	0.90	1.15	1.00	1.10
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.50	0.50	0.50	0.60	0.50	0.50
Product Development						
PED	0.45	0.45	0.45	0.45	0.45	0.45
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.50	0.45	0.55	0.65	0.55	0.60
CTEST	3.00	3.00	3.20	3.50	3.00	3.20
CAD	0.50	0.50	0.55	0.65	0.55	0.60
TI	0.20	0.20	0.20	0.25	0.20	0.20
Total Support	6.15	5.80	6.35	7.25	6.25	6.65

2021391410

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5

Identify New Product/Process Concepts And Develop Products/Processes For The International Market

Support

Program	Current	1990	1991	1992	1993	1994
International Product Support						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	3.90	2.90	3.50	4.20	4.70	4.90
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	8.30	9.50	9.90	10.40	11.00	11.50
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	2.00	2.00	2.15	2.40	2.55	2.65
CTEST	0.50	-	-	0.40	0.90	1.20
CAD	2.10	2.10	2.20	2.40	2.55	2.65
TI	0.75	0.80	0.80	0.90	0.95	1.00
Total Support	17.55	17.30	18.55	20.70	22.65	23.90

2021391411

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5
(Continued)

Identify New Product/Process Concepts And Develop
Products/Processes For The International Market

Support

Program	Current	1990	1991	1992	1993	1994
TMCI BL Process Development						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.10	-	-	-	-	-
CTEST	-	-	-	-	-	-
CAD	0.10	-	-	-	-	-
TI	0.05	-	-	-	-	-
Total Support	0.25					

2021391412

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5
(Continued)

Identify New Product/Process Concepts And Develop Products/Processes For The International Market

Support

Program	Current	1990	1991	1992	1993	1994
Reduced Tar & Nicotine						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	0.25	0.25	0.25	0.25	0.25	0.15
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.05	0.05	0.05	0.05	0.05	0.05
CTEST	1.00	1.00	1.00	1.00	1.00	1.00
CAD	0.05	0.05	0.05	0.05	0.05	0.05
TI	-	-	-	-	-	-
Total Support	1.35	1.35	1.35	1.35	1.35	1.25

2021391413

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 5
(Continued)

Identify New Product/Process Concepts And Develop
Products/Processes For The International Market

Support

Program	Current	1990	1991	1992	1993	1994
Filter Research						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	0.20	0.30	0.30	0.30	0.30	0.30
Product Development						
PED	1.00	1.15	1.25	1.25	1.40	1.35
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.25	0.30	0.30	0.30	0.35	0.35
CTEST	0.50	0.50	0.50	0.50	0.60	0.60
CAD	0.25	0.30	0.30	0.30	0.35	0.35
TI	0.10	0.10	0.10	0.10	0.15	0.15
Total Support	2.30	2.65	2.75	2.75	3.15	3.10

2021391414

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Combustion Research*						
Mass Burn Control						
Project Tomorrow						
Pyrolysis Temperature Control						
Cigarette With Low Burn Temperature						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.15	0.15	0.35	0.55	0.55	0.65
CTEST	-	-	-	-	-	-
CAD	0.15	0.15	0.35	0.55	0.55	0.65
TI	0.05	0.05	0.15	0.20	0.20	0.25
Total	0.35	0.35	0.85	1.30	1.30	1.55

2021391415

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(Continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Flavors*						
Thermal Flavor-Release						
Sigma/Beta						
Ambrosia						
Flavor Formation Studies						
Cigarette With Low Burn Temperature						
Fragrances						
Ambrosia						
Volatile Flavors						
Cigarette With No ETS						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.50	0.55	0.95	1.20	1.30	1.35
CTEST	-	-	-	-	-	-
CAD	0.55	0.60	1.00	1.20	1.30	1.35
TI	0.20	0.20	0.35	0.45	0.50	0.50
Total Support	1.25	1.35	2.30	2.85	3.10	3.20

2021391416

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(Continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Aerosols*						
Formation Mechanisms						
Sigma/Beta						
Reduced Sidestream Cigarette with Low Combustion Temp.						
Short Lived Aerosols						
Cigarette with No ETS						
Selective Filtration						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	0.45	0.30	0.35	0.40	0.45	0.45
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.20	0.20	0.20	0.20	0.25	0.25
CTEST	-	-	-	-	-	-
CAD	0.25	0.20	0.25	0.20	0.25	0.25
TI	0.10	0.10	0.10	0.10	0.10	0.10
Total Support	1.00	0.80	0.90	0.90	1.05	1.05

2021391417

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(Continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Selective Separations*						
Supercritical Fluids						
Project ART						
TSNA						
Membrane Separation						
Cigarette With Low Burn Temperature						
Project ART						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.15	0.25	0.25	0.40	0.55	0.60
CTEST	-	-	-	-	-	-
CAD	0.15	0.25	0.30	0.40	0.55	0.60
TI	0.05	0.10	0.10	0.15	0.20	0.20
Total	0.35	0.60	0.65	0.95	1.30	1.40

2021391418

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(Continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Consumer Testing Res.*						
Regression-Based Modelling of Liking						
Stochastic Discrimination Models						
Cost/Benefit Evaluation						
Quantitative Modelling of Market Dynamics						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	0.30	0.10	0.30	0.30	0.30	0.30
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.35	0.40	0.45	0.50	0.50	0.60
CTEST	-	-	-	-	-	-
CAD	0.40	0.45	0.50	0.50	0.50	0.60
TI	0.15	0.15	0.15	0.20	0.20	0.25
Total Support	1.20	1.10	1.40	1.50	1.50	1.75

2021391419

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Measurement & Sensing of Physical & Chemical Characteristics*						
Process Control Systems						
Optical Processing						
Project ART						
Adhesive Application						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.15	0.20	0.25	0.35	0.55	0.40
CTEST	-	-	-	-	-	-
CAD	0.15	0.20	0.25	0.35	0.55	0.40
TI	0.05	0.10	0.10	0.15	0.20	0.20
Total Support	0.35	0.50	0.60	0.85	1.30	1.00

2021391420

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Biological*						
Antibodies						
New Analytical Methods						
Biosensors						
Process Control Systems						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.30	0.30	0.40	0.45	0.60	0.70
CTEST	-	-	-	-	-	-
CAD	0.30	0.30	0.40	0.45	0.60	0.70
TI	0.10	0.10	0.15	0.15	0.25	0.25
Total Support	0.70	0.70	0.95	1.05	1.45	1.65

2021391421

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Computing Systems*						
Expert Systems and Neural Networks Process Control Optical Computing QA Inspection						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	0.30	0.30	0.35	0.40	0.40	0.40
CTEST	-	-	-	-	-	-
CAD	0.30	0.30	0.35	0.40	0.40	0.40
TI	0.10	0.10	0.15	0.15	0.15	0.15
Total Support	0.70	0.70	0.85	0.95	0.95	0.95

2021391422

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

STRATEGIC GOAL NUMBER 6
(continued)

Provide A Broad Foundation Of Basic Research That Will Generate New Product Concepts In 5-15 Years

Support

Program	Current	1990	1991	1992	1993	1994
Basic Analytical Research						
New Analytical Methods						
Research						
ARD	-	-	-	-	-	-
BCR	-	-	-	-	-	-
CR	-	-	-	-	-	-
PR	-	-	-	-	-	-
Process Development						
DE	-	-	-	-	-	-
TF	-	-	-	-	-	-
TM	-	-	-	-	-	-
TP&F	-	-	-	-	-	-
Product Development						
PED	-	-	-	-	-	-
CTECH	-	-	-	-	-	-
FD	-	-	-	-	-	-
CD	-	-	-	-	-	-
R&D Support						
AS	-	-	-	-	0.15	0.35
CTEST	-	-	-	-	-	-
CAD	-	-	-	-	0.15	0.35
TI	-	-	-	-	0.05	0.10
Total Support	-	-	-	-	0.35	0.80

2021391423

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

APPENDIX J

RESOURCE ALLOCATIONS

BY

DIVISION

2021391425

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Analytical Research Division
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	6.60	4.80	5.40	5.80	8.90	6.90
Reduced Density Rod	1.10	--	--	--	--	--
2nd Generation DIET	1.10	1.60	2.00	2.00	2.00	2.00
ART Support	19.00	18.10	15.10	12.10	5.00	5.00
Environmental Issues	0.10	0.10	1.00	2.00	3.00	3.10
Cast Sheet RCB	--	1.30	1.60	1.20	1.10	1.10
Sub Total	**27.90**	**25.90**	**25.10**	**23.10**	**20.00**	**18.10**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	1.10	2.00	2.00	3.00	3.00	4.00
LBA	0.50	0.50	0.50	1.00	1.00	1.00
Supercritical Technology	3.30	4.40	6.40	5.40	7.00	7.40
Sub Total	**4.90**	**6.90**	**8.90**	**9.40**	**11.00**	**12.40**
Strategic Goal No. 3						
Reduced Sidestream	6.00	6.00	3.00	2.00	1.00	--
Project Ambrosia	0.50	0.50	--	--	--	--
ETS	3.80	6.00	6.00	5.00	2.00	2.00
Project PACT	2.20	--	--	--	--	--
Sub Total	**12.50**	**12.50**	**9.00**	**7.00**	**3.00**	**2.00**
Strategic Goal No. 4						
Menthol	0.10	0.10	1.00	1.00	1.00	1.00
Low Tar/High Flavor	--	--	1.00	1.00	2.00	2.00
Domestic Product Support	1.10	1.10	1.00	2.00	1.00	1.00
Filter Research	1.10	1.10	1.00	2.00	1.00	1.00
Sub Total	**2.30**	**2.30**	**4.00**	**6.00**	**5.00**	**5.00**
Strategic Goal No. 5						
International Product Support	2.40	2.50	3.00	3.50	4.00	4.50
TMCI BL Process Dev.	0.10	--	--	--	--	--
Sub Total	**2.50**	**2.50**	**3.00**	**3.50**	**4.00**	**4.50**

2021391426

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Strategic Goal No. 6

Flavors	1.10	1.10	3.00	4.00	5.00	5.00
Selective Separations	1.10	2.10	2.00	3.00	4.00	3.00
Measurement & Sensing of Physical & Chemical Characteristics	0.50	0.50	1.00	2.00	4.00	4.00
Biological	1.20	1.20	2.00	2.00	2.00	2.00
Basic Analytical Res.	--	--	--	--	2.00	4.00
Sub Total	**3.90**	**4.90**	**8.00**	**11.00**	**17.00**	**18.00**
TOTAL	**54.00**	**55.00**	**58.00**	**60.00**	**60.00**	**60.00**

2021391427

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Biochmical Research Division
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	14.90	14.90	15.10	15.10	15.10	15.10
Reduced Density Rod	0.55	--	--	--	--	--
ART Support	1.45	0.40	--	--	--	--
Environmental Issues	--	--	0.50	1.00	1.50	2.00
Sub Total	**16.90**	**15.30**	**15.60**	**16.10**	**16.60**	**17.10**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	0.05	0.05	0.05	0.05	0.05	0.05
TSNA	15.20	15.20	15.20	15.10	10.50	8.50
LBA	13.55	13.65	13.65	14.65	16.65	17.45
Supercritical Technology	0.50	1.00	1.00	1.00	2.00	2.00
Sub Total	**29.30**	**29.90**	**29.90**	**30.80**	**29.20**	**28.00**
Strategic Goal No. 3						
Reduced Sidestream	0.50	0.60	1.00	2.00	2.00	2.00
Sub Total	**0.50**	**0.60**	**1.00**	**2.00**	**2.00**	**2.00**
Strategic Goal No. 4						
Low Tar/High Flavor	1.10	1.10	1.00	1.00	1.00	1.00
Sub Total	**1.10**	**1.10**	**1.00**	**1.00**	**1.00**	**1.00**
Strategic Goal No. 5						
International Product Support	0.10	--	--	--	--	--
Sub Total	**0.10**	--	--	--	--	--
Strategic Goal No. 6						
Combustion Research	--	--	0.50	1.00	1.00	1.50
Selective Separations	0.50	0.50	0.10	0.10	0.10	0.10
Consumer Testing Research	2.00	2.00	2.00	2.00	2.00	2.00
Biological	2.60	2.60	2.90	3.00	5.10	5.30
Sub Total	**5.10**	**5.10**	**5.50**	**6.10**	**8.20**	**8.90**
TOTAL	**53.00**	**52.00**	**53.00**	**56.00**	**57.00**	**57.00**

2021391428

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Chemical Research Division
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No.1						
Operations. Support	0.50	0.40	0.40	0.30	0.40	0.50
Project Tomorrow	0.20	1.00	1.00	0.50	0.20	0.20
Reduced Density Rod	0.10	--	--	--	--	--
Tamper Evident Pkg.	0.10	0.30	1.00	1.00	0.50	0.10
ART Support	0.20	0.30	0.10	--	--	--
Environmental Issues	1.00	2.00	1.00	1.00	1.00	1.00
Cast Sheet RCB	--	0.10	0.10	0.20	0.10	--
Sub Total	**2.10**	**4.10**	**3.60**	**3.00**	**2.20**	**1.80**
Strategic Goal No. 2						
Proj. ART	2.00	2.00	1.50	1.50	1.50	1.50
TSNA	1.00	1.00	1.00	1.00	1.00	1.00
LBA	1.00	1.00	1.00	1.00	1.00	1.00
Sub Total	**4.00**	**4.00**	**3.50**	**3.50**	**3.50**	**3.50**
Strategic Goal No. 3						
Reduced Sidestream	15.50	15.70	13.90	13.00	13.00	13.00
Project. Ambrosia	1.50	1.00	1.00	0.20	0.20	0.20
Sub Total	**17.00**	**16.70**	**14.90**	**13.20**	**13.20**	**13.20**
Strategic Goal No. 4						
Menthol	1.00	1.00	0.50	0.50	0.50	0.50
Low Tar/High Flavor	3.00	2.50	2.50	2.00	2.00	2.00
Filter Research	--	0.50	1.50	1.50	1.50	1.50
Sub Total	**4.00**	**4.00**	**4.50**	**4.00**	**4.00**	**4.00**
Strategic Goal No. 6						
Combustion Research	--	0.20	1.00	2.80	3.00	4.00
Flavors	2.10	1.60	3.70	4.90	5.10	5.00
Aerosols	0.30	0.10	0.30	0.10	0.50	0.50
Selective Separations	0.30	0.30	0.50	0.50	0.50	1.50
Measurements & Sensing of Physical & Chemical Characteristics	1.20	1.00	1.00	1.00	1.00	0.50
Sub Total	**3.90**	**3.20**	**6.50**	**9.30**	**10.10**	**11.50**
TOTAL	**31.00**	**32.00**	**33.00**	**33.00**	**33.00**	**34.00**

2021391429

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Physical Research Division
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	3.00	3.00	2.00	2.00	2.00	4.00
Project Tomorrow	2.50	2.50	4.00	5.50	4.50	2.50
Reduced Density Rod	1.00	--	--	--	--	--
Optical Processing	5.50	5.50	6.00	5.00	5.00	5.50
ART Support	2.50	1.50	1.50	1.50	1.50	1.50
Sub Total	**14.50**	**12.50**	**13.50**	**14.00**	**13.00**	**13.50**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	14.00	14.00	14.00	14.00	14.00	12.00
Project ART	1.00	1.00	1.00	1.00	1.00	1.00
Selective Filtration	0.50	1.50	1.50	1.50	1.50	1.50
Supercritical Technology	1.50	2.50	3.50	4.50	5.50	5.50
Sub Total	**17.00**	**19.00**	**20.00**	**21.00**	**22.00**	**20.50**
Strategic Goal No. 3						
None						
Strategic Goal No. 4						
Menthol	1.50	0.50	--	--	--	--
Filter Research	2.50	2.50	2.50	2.50	2.50	3.00
Sub Total	**4.00**	**3.00**	**2.50**	**2.50**	**2.50**	**3.00**
Strategic Goal No. 5						
None						
Strategic Goal No. 6						
Combustion Research	1.50	1.50	2.50	2.50	2.00	2.00
Aerosols	2.00	2.00	2.00	2.00	2.00	2.00
Selective Separations	--	--	0.50	1.00	1.50	2.00
Measurement & Sensing of Physical & Chemical Characteristics	--	1.00	1.00	1.00	1.00	1.00
Sub Total	**3.50**	**4.50**	**6.00**	**6.50**	**6.50**	**7.00**
TOTAL	**39.00**	**39.00**	**42.00**	**44.00**	**44.00**	**44.00**

2021391430

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Development Engineering Division
(Direct and Support)

		Current	1990	1991	1992	1993	1994
Strategic Goal No. 1							
Operations Support	(D)	2.70	2.50	2.50	2.50	2.50	2.50
Project Tomorrow	(S)	0.65	0.65	1.10	1.40	1.15	0.70
Reduced Density Rod	(D)	0.50	--	--	--	--	--
Optical Processing	(D)	0.20	2.50	2.00	1.00	1.00	1.00
Optical Processing	(S)	1.00	1.00	1.10	1.00	1.00	1.00
2nd Generation DIET	(D)	--	0.50	0.50	0.50	0.50	0.50
2nd Generation DIET	(S)	0.75	1.30	1.55	1.75	1.90	2.00
ART Support	(D)	2.00	2.00	0.50	0.50	--	--
Environmental Issues	(D)	1.00	1.00	1.00	1.00	1.00	1.00
Cast Sheet RCB	(D)	--	0.50	0.50	0.50	--	--
Sub Total		**8.80**	**11.95**	**10.75**	**10.15**	**9.05**	**8.70**
Strategic Goal No. 2							
Project Delta/Sigma	(D)	2.00	2.00	2.00	2.00	2.00	2.00
Project ART	(S)	3.65	2.45	2.35	2.40	2.40	2.40
Supercritical Tech.	(D)	0.10	--	--	--	--	--
Supercritical Tech.	(S)	--	0.90	1.50	1.65	2.30	2.35
Sub Total		**5.75**	**5.35**	**5.85**	**6.05**	**6.70**	**6.75**
Strategic Goal No. 3							
Reduced Sidestream	(D)	0.50	0.50	0.50	0.50	0.50	0.50
Project Ambrosia	(S)	0.85	0.55	0.50	0.20	0.15	0.15
ETS	(D)	0.20	0.25	0.25	0.25	0.25	0.25
Project PACT	(D)	2.00	2.00	2.00	1.00	1.00	1.00
Sub Total		**3.55**	**3.30**	**3.25**	**1.95**	**1.90**	**1.90**
Strategic Goal No. 4							
Menthol	(D)	0.25	0.25	0.25	0.25	0.25	0.25
Domestic Products	(S)	1.90	1.80	2.50	3.20	3.30	3.30
Filter Research	(D)	1.00	0.25	--	--	--	--
Filter Research	(S)	1.00	0.70	0.90	1.15	1.00	1.10
Sub Total		**4.15**	**3.00**	**3.65**	**4.60**	**4.55**	**4.65**
Strategic Goal No. 5							
Intn. Products	(S)	3.90	2.90	3.50	4.20	4.70	4.90
Sub Total		**3.90**	**2.90**	**3.50**	**4.20**	**4.70**	**4.90**

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Strategic Goal No. 6

Flavors	(D)	1.00	1.00	0.25	0.25	0.25	0.25
Aerosols	(S)	0.45	0.30	0.35	0.40	0.45	0.45
Consumer Testing	(S)	0.30	0.10	0.30	0.30	0.30	0.30
Computer Systems	(D)	0.10	0.10	0.10	0.10	0.10	0.10
Sub Total		**1.85**	**1.50**	**1.00**	**1.05**	**1.10**	**1.10**
TOTAL		**28.00**	**28.00**	**28.00**	**28.00**	**28.00**	**28.00**

D = Direct
S = Support

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Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Tobacco Fundamentals Division
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	1.00	3.00	2.50	--	--	--
Project Tomorrow	--	0.30	0.50	0.50	--	--
Reduced Density Rod	11.30	--	--	--	--	--
2nd Generation DIET	--	6.20	4.00	4.50	5.00	5.00
Sub Total	**12.30**	**9.50**	**7.00**	**5.00**	**5.00**	**5.00**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	2.20	2.50	3.00	4.50	4.50	4.50
Sub Total	**2.20**	**2.50**	**3.00**	**4.50**	**4.50**	**4.50**
Strategic Goal No. 3						
Project Ambrosia	--	0.50	0.50	--	--	--
Sub Total	**--**	**0.50**	**0.50**	**--**	**--**	**--**
Strategic Goal No. 4						
Menthol	0.50	1.00	1.50	2.00	2.00	2.00
Domestic Product Support	0.50	1.00	1.50	1.50	1.50	1.50
Sub Total	**1.00**	**2.00**	**3.00**	**3.50**	**3.50**	**3.50**
Strategic Goal No. 5						
International Products	0.50	1.00	1.00	1.00	1.00	1.00
Sub Total	**0.50**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
Strategic Goal No. 6						
Flavors	--	0.50	1.50	2.00	2.00	2.00
Sub Total	**--**	**0.50**	**1.50**	**2.00**	**2.00**	**2.00**
TOTAL	**16.00**	**16.00**	**16.00**	**16.00**	**16.00**	**16.00**

2021391433

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Tobacco Materials Division
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No.1						
Operations Support	4.60	5.60	7.10	5.60	5.60	5.60
Reduced Density Rod	1.20	--	--	--	--	--
Project Natural	--	1.00	--	--	--	--
2nd Generation DIET	2.70	1.00	2.00	2.00	2.00	2.00
ART Support	9.30	5.30	4.30	5.30	5.50	5.50
Environmental Issues	--	1.00	1.00	1.00	1.00	1.00
Cast Sheet RCB	--	4.20	4.00	5.00	5.00	5.00
Sub Total	**17.80**	**18.10**	**18.40**	**18.90**	**19.10**	**19.10**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	0.40	0.20	0.20	0.20	0.20	0.20
Project ART	14.80	13.90	12.60	11.60	11.40	11.40
TSNA	0.10	--	0.50	--	0.50	--
LBA	0.20	0.50	--	0.50	--	0.50
Selective Filtration	--	0.30	0.30	0.80	0.80	0.80
Sub Total	**15.50**	**14.90**	**13.60**	**13.10**	**12.90**	**12.90**
Strategic Goal No. 3						
Reduced Sidestream	4.00	3.00	3.00	3.00	3.00	3.00
Project PACT	1.00	1.00	1.00	1.00	1.00	1.00
Sub Total	**5.00**	**4.00**	**4.00**	**4.00**	**4.00**	**4.00**
Strategic Goal No. 4						
Domestic Product Support	1.60	4.00	5.00	5.00	5.00	5.00
Sub Total	**1.60**	**4.00**	**5.00**	**5.00**	**5.00**	**5.00**
Strategic Goal No. 5						
TMCI BL Processing	1.10	--	--	--	--	--
Sub Total	**1.10**	**--**	**--**	**--**	**--**	**--**
TOTAL	**41.00**	**41.00**	**41.00**	**41.00**	**41.00**	**41.00**

2021391434

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Tobacco Processing and Fabrication
(Support)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	17.80	17.90	19.10	18.70	20.00	20.10
Project Tomorrow	0.90	1.30	2.00	2.30	1.90	1.20
Reduced Density Rod	0.90	--	--	--	--	--
Project Natural	0.50	1.30	0.50	0.40	0.40	0.40
2nd Generation DIET	0.70	1.90	2.00	2.10	2.20	2.20
ART Support	2.70	2.40	1.90	1.60	1.00	1.00
Environmental Issues	0.30	0.60	0.70	0.90	1.10	1.20
Cast Sheet RCB	--	0.70	1.00	1.00	1.00	1.00
Sub Total	**23.80**	**26.10**	**27.20**	**27.00**	**27.60**	**27.10**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	0.80	0.90	0.90	1.00	1.00	1.00
Project ART	10.80	11.20	9.30	8.80	8.60	8.50
TSNA	0.10	0.10	0.10	0.10	0.10	0.10
LBA	0.10	0.10	0.10	0.10	0.10	0.10
Sub Total	**11.80**	**12.30**	**10.40**	**10.00**	**9.80**	**9.70**
Strategic Goal No. 3						
Reduced Sidestream	2.90	3.10	2.70	2.60	2.50	2.40
Project Ambrosia	0.20	0.20	0.20	0.10	0.10	0.10
Sub Total	**3.10**	**3.30**	**2.90**	**2.70**	**2.60**	**2.50**
Strategic Goal No. 4						
Menthol	0.80	0.70	0.90	1.00	1.10	1.20
Low Tar/High Flavor	0.80	0.80	0.90	0.90	1.00	1.00
Domestic Product Support	4.70	6.50	8.00	9.10	9.10	9.20
Filter Research	0.50	0.50	0.50	0.60	0.50	0.50
Sub Total	**6.80**	**8.50**	**10.30**	**11.60**	**11.70**	**11.90**
Strategic Goal No. 5						
International Product	8.30	9.50	9.90	10.40	11.00	11.50
Filter Research	0.20	0.30	0.30	0.30	0.30	0.30
Sub Total	**8.50**	**9.80**	**10.20**	**10.70**	**11.30**	**11.80**
TOTAL	**54.00**	**60.00**	**61.00**	**62.00**	**63.00**	**63.00**

2021391435

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Product Evaluation Division
(Direct and Support)

		Current	1990	1991	1992	1993	1994
Strategic Goal No. 1							
Operations Support	(Sup)	2.30	2.10	2.45	2.90	2.90	2.75
Project Tomorrow	(Sup)	0.45	0.50	0.85	0.90	0.85	0.60
Red. Density Rod	(Sup)	0.25	--	--	--	--	--
Project Natural	(Sup)	0.25	0.25	0.25	0.20	0.20	0.20
2nd Generation DIET	(Sup)	0.20	0.50	0.55	0.45	0.45	0.45
ART Support	(Dir)	2.50	2.50	1.50	--	--	--
ART Support	(Sup)	0.35	0.25	0.25	0.25	0.25	0.20
Envrn. Issues	(Sup)	0.20	0.15	0.25	0.25	0.25	0.25
Cast Sheet RCB	(Sup)	--	0.15	0.15	0.15	0.15	0.15
Sub Total		**6.50**	**6.40**	**6.25**	**5.10**	**5.05**	**4.60**
Strategic Goal No. 2							
Project ART	(Sup)	1.40	1.20	0.55	0.55	0.35	0.20
Selective Filt.	(Sup)	0.15	0.15	0.25	0.25	0.25	0.25
Sub Total		**1.55**	**1.35**	**0.80**	**0.80**	**0.60**	**0.45**
Strategic Goal No. 3							
Reduced Sidestream	(Sup)	2.05	1.75	1.85	1.85	1.80	1.70
Project Ambrosia	(Sup)	1.10	0.90	0.75	0.40	0.30	0.20
Sub Total		**3.15**	**2.65**	**2.60**	**2.25**	**2.10**	**1.90**
Strategic Goal No. 4							
Menthol	(Sup)	0.75	0.60	1.00	1.00	1.00	1.15
Low Tar/High Flavor	(Sup)	1.90	1.85	2.00	2.20	2.20	2.20
Domestic Product	(Sup)	8.95	8.80	9.90	11.70	11.95	11.75
Filter Research	(Sup)	0.45	0.45	0.45	0.45	0.45	0.45
Sub Total		**12.05**	**11.70**	**13.35**	**15.35**	**15.60**	**15.55**
Strategic Goal No. 5							
Red. Tar & Nicotine	(Sup)	0.25	0.25	0.25	0.25	0.25	0.15
Filter Research	(Sup)	1.00	1.15	1.25	1.25	1.40	1.35
Sub Total		**1.25**	**1.40**	**1.50**	**1.50**	**1.65**	**1.50**
Strategic Goal No. 6							
Consumer Test Res.	(Dir)	2.50	3.50	3.50	4.00	4.00	5.00
Sub Total		**2.50**	**3.50**	**3.50**	**4.00**	**4.00**	**5.00**
TOTAL		**27.00**	**27.00**	**28.00**	**29.00**	**29.00**	**29.00**

2021391436

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Cigarette Technology
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No.1						
Operations Support	3.60	3.70	3.55	3.65	3.75	3.75
Project Tomorrow	0.35	0.55	0.75	0.75	0.75	0.75
Reduced Density Rod	0.25	--	--	--	--	--
Tamper Evident Pkg.	0.05	0.20	0.20	0.45	0.45	0.45
Cast Sheet RCB	--	0.30	0.50	0.40	0.30	0.30
Sub Total	**4.25**	**4.75**	**5.00**	**5.25**	**5.25**	**5.25**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	11.05	11.00	12.00	12.75	12.75	12.75
Project ART	0.60	0.60	--	--	--	--
Selective Filtration	0.40	0.40	0.50	0.50	0.50	0.50
Sub Total	**12.05**	**12.00**	**12.50**	**13.25**	**13.25**	**13.25**
Strategic Goal No. 3						
Reduced Sidestream	4.05	4.05	4.05	4.15	4.15	4.15
Project Ambrosia	1.55	1.00	0.50	0.15	0.15	0.15
Sub Total	**5.60**	**5.05**	**4.55**	**4.30**	**4.30**	**4.30**
Strategic Goal No. 4						
Menthol	0.95	0.30	0.30	0.30	0.30	0.30
Low Tar/High Flavor	1.50	1.50	1.25	1.25	1.00	1.00
Domestic Product Support	1.75	1.85	1.85	2.85	3.10	3.10
Filter Research	1.00	1.00	1.00	1.00	1.00	1.00
Sub Total	**5.20**	**4.65**	**4.40**	**5.40**	**5.40**	**5.40**
Strategic Goal No. 5						
International Products	1.40	1.30	1.30	1.80	2.30	2.30
Reduced Tar & Nicotine	0.50	0.50	0.50	0.50	0.50	0.50
Filter Research	3.00	3.50	3.50	3.50	4.00	4.00
Sub Total	**4.90**	**5.30**	**5.30**	**5.80**	**6.80**	**6.80**
Strategic Goal No. 6						
Flavors	0.20	0.45	0.45	0.20	0.20	0.20
Aerosols	0.30	0.30	0.30	0.30	0.30	0.30
Computer Systems	0.50	0.50	0.50	0.50	0.50	0.50
Sub Total	**1.00**	**1.25**	**1.25**	**1.00**	**1.00**	**1.00**
TOTAL	**33.00**	**33.00**	**33.00**	**35.00**	**36.00**	**36.00**

2021391437

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Flavor Development Division
Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	2.70	0.90	1.80	2.80	2.90	3.00
Project Tomorrow	--	--	0.20	0.20	0.20	--
Project Natural	0.20	0.20	0.20	--	--	--
2nd Generation DIET	0.55	1.55	1.55	1.30	1.30	1.30
ART Support	1.00	0.75	0.25	0.25	0.25	0.10
Environmental Issues	0.35	0.20	0.10	0.20	0.20	0.20
Cast Sheet RCB	--	0.70	1.10	1.00	0.90	0.90
Sub Total	**4.80**	**4.30**	**5.20**	**5.75**	**5.75**	**5.50**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	1.55	2.50	2.00	1.00	0.50	0.10
Project ART	2.60	2.00	1.00	1.00	0.50	0.10
Selective Filtration	--	--	0.20	0.20	0.20	0.20
Sub Total	**4.15**	**4.50**	**3.20**	**2.20**	**1.20**	**0.40**
Strategic Goal No. 3						
Reduced Sidestream	1.55	0.75	0.55	0.25	0.25	0.25
Project Ambrosia	0.65	0.75	0.65	0.40	0.15	--
Sub Total	**2.20**	**1.50**	**1.20**	**0.65**	**0.40**	**0.25**
Strategic Goal No. 4						
Menthol	0.80	1.00	2.00	2.00	2.35	2.60
Low Tar/High Flavor	2.15	2.00	2.35	2.85	3.25	3.25
Domestic Product Support	3.05	3.05	4.15	4.55	5.05	5.05
Filter Research	0.30	0.30	0.30	0.30	0.30	0.30
Sub Total	**6.30**	**6.35**	**8.80**	**9.70**	**10.95**	**11.20**
Strategic Goal No. 5						
International Products	2.10	1.95	2.00	3.00	4.00	4.50
TMCI BL Processing	0.05	--	--	--	--	--
Reduced Tar & Nicotine	0.20	0.20	0.20	0.20	0.20	--
Sub Total	**2.35**	**2.15**	**2.20**	**3.20**	**4.20**	**4.50**
Strategic Goal No. 6						
Flavors	2.20	2.20	2.40	2.50	2.50	3.15
Sub Total	**2.20**	**2.20**	**2.40**	**2.50**	**2.50**	**3.15**
TOTAL	**22.00**	**21.00**	**23.00**	**24.00**	**25.00**	**25.00**

2021391438

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Cigarette Development
(Direct)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	0.50	0.50	0.50	0.50	0.50	0.50
Project Tomorrow	1.00	1.50	1.50	1.50	1.50	1.00
Reduced Density Rod	0.50	--	--	--	--	--
Project Natural	0.50	0.50	0.50	0.50	0.50	0.50
ART Support	--	--	0.50	0.50	0.50	0.50
Environmental Issues	0.25	0.25	0.50	0.50	0.50	0.50
Sub Total	**2.75**	**2.75**	**3.50**	**3.50**	**3.50**	**3.00**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	--	--	0.25	0.25	0.25	0.75
Project ART	1.00	1.00	0.50	0.50	0.50	0.50
TSNA	--	--	0.25	0.25	0.25	0.25
LBA	--	--	0.25	0.25	0.25	0.25
Sub Total	**1.00**	**1.00**	**1.25**	**1.25**	**1.25**	**1.75**
Strategic Goal No. 3						
Reduced Sidestream	0.50	0.50	0.75	0.75	0.75	0.75
Project Ambrosia	1.00	1.00	1.00	0.50	0.50	0.50
Sub Total	**1.50**	**1.50**	**1.75**	**1.25**	**1.25**	**1.25**
Strategic Goal No. 4						
Menthol	0.50	0.50	0.50	0.50	0.50	0.50
Low Tar/High Flavor	2.00	2.00	2.00	2.00	2.00	2.00
Domestic Product Support	3.25	3.25	4.00	4.50	4.50	4.50
Sub Total	**5.75**	**5.75**	**6.50**	**7.00**	**7.00**	**7.00**
TOTAL	**11.00**	**11.00**	**13.00**	**13.00**	**13.00**	**13.00**

2021391439

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Administration Services Division
(Support)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	3.60	3.50	3.70	3.50	3.85	3.70
Project Tomorrow	0.35	0.40	0.65	0.80	0.65	0.40
Reduced Density Rod	1.30	--	--	--	--	--
Optical Processing	0.50	0.70	0.70	0.55	0.55	0.60
Tamper Evident Pkg.	--	0.05	0.10	0.15	0.10	0.05
Project Natural	0.05	0.10	0.05	0.05	0.05	0.05
2nd Generation DIET	0.35	0.90	0.85	0.90	0.95	0.95
ART Support	3.00	2.45	1.95	1.75	1.10	1.10
Environmental Issues	0.20	0.35	0.40	0.60	0.70	0.75
Cast Sheet RCB	--	0.55	0.65	0.75	0.65	0.65
Sub Total	**9.35**	**9.00**	**9.05**	**9.05**	**8.60**	**8.25**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	2.70	2.80	3.10	3.40	3.30	3.25
Project ART	1.80	1.65	1.40	1.40	1.35	1.30
TSNA	1.30	1.30	1.45	1.45	1.05	0.85
LBA	1.25	1.30	1.30	1.55	1.70	1.80
Selective Filtration	0.05	0.15	0.20	0.25	0.25	0.30
Supercritical Technology	0.45	0.65	0.90	0.95	1.25	1.30
Sub Total	**7.55**	**7.85**	**8.35**	**9.00**	**8.90**	**8.80**
Strategic Goal No. 3						
Reduced Sidestream	2.70	2.60	2.35	2.35	2.25	2.15
Project Ambrosia	0.40	0.40	0.30	0.10	0.10	0.05
ETS	0.30	0.50	0.50	0.45	0.20	0.20
Project PACT	0.50	0.30	0.35	0.25	0.25	0.25
Sub Total	**3.90**	**3.80**	**3.50**	**3.15**	**2.80**	**2.65**
Strategic Goal No. 4						
Menthol	0.45	0.35	0.50	0.55	0.60	0.60
Low Tar/High Flavor	0.80	0.70	0.85	0.90	0.95	0.95
Domestic Product Support	0.95	1.15	1.50	1.90	1.80	1.80
Filter Research	0.50	0.45	0.55	0.65	0.55	0.60
Sub Total	**2.70**	**2.65**	**3.40**	**4.00**	**3.90**	**3.95**
Strategic Goal No. 5						
Intn. Product Support	2.00	2.00	2.15	2.40	2.55	2.65
TMCI BL Processing Dev.	0.10	--	--	--	--	--
Reduced Tar & Nicotine	0.05	0.05	0.05	0.05	0.05	0.05
Filter Research	0.25	0.30	0.30	0.30	0.35	0.35
Sub Total	**2.40**	**2.35**	**2.50**	**2.75**	**2.95**	**3.05**

2021391440

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Strategic Goal No. 6

Combustion Research	0.15	0.15	0.35	0.55	0.55	0.65
Flavors	0.50	0.55	0.95	1.20	1.30	1.35
Aerosols	0.20	0.20	0.20	0.20	0.25	0.25
Selective Separations	0.15	0.25	0.25	0.40	0.55	0.60
Consumer Testing Research	0.35	0.40	0.45	0.50	0.50	0.60
Measurement & Sensing of Physical & Chemical Characteristics	0.15	0.20	0.25	0.35	0.55	0.40
Biological	0.30	0.30	0.40	0.45	0.60	0.70
Computing Systems	0.30	0.30	0.35	0.40	0.40	0.40
Basic Analytical Research	--	--	--	--	0.15	0.35
Sub Total	**2.10**	**2.35**	**3.20**	**4.05**	**4.85**	**5.30**
TOTAL	**28.00**	**28.00**	**30.00**	**32.00**	**32.00**	**32.00**

2021391441

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Cigarette Testing Division
(Support)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	5.50	6.00	6.40	6.20	6.60	6.50
Project Tomorrow	1.00	1.00	1.50	1.70	1.40	1.00
Reduced Density Rod	0.50	--	--	--	--	--
Project Natural	0.50	0.50	0.40	0.30	0.30	0.30
2nd Generation DIET	0.50	0.50	1.00	1.00	1.80	1.80
ART Support	3.00	3.00	2.40	2.00	1.20	1.20
Cast Sheet RCB	--	0.30	0.50	0.40	0.30	0.30
Sub Total	**11.00**	**11.30**	**12.20**	**11.60**	**11.60**	**11.10**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	1.00	1.00	1.00	1.00	1.00	1.00
Project ART	0.50	0.50	0.50	0.50	0.50	0.50
Sub Total	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**
Strategic Goal No. 3						
Reduced Sidestream	0.50	0.50	0.50	0.50	0.50	0.50
Project Ambrosia	1.00	1.00	1.00	0.50	0.40	0.30
Sub Total	**1.50**	**1.50**	**1.50**	**1.00**	**0.90**	**0.80**
Strategic Goal No. 4						
Menthol	3.00	3.00	3.00	3.20	3.40	3.50
Low Tar/High Flavor	2.00	2.00	2.20	2.20	2.40	2.40
Domestic Product Support	14.00	14.20	14.90	16.10	16.70	16.70
Filter Research	3.00	3.00	3.20	3.50	3.00	3.20
Sub Total	**22.00**	**22.20**	**23.30**	**25.00**	**25.50**	**25.80**
Strategic Goal No. 5						
Int. Product Support	0.50	--	--	0.40	0.90	1.20
Reduced Tar & Nicotine	1.00	1.00	1.00	1.00	1.00	1.00
Filter Research	0.50	0.50	0.50	0.50	0.60	0.60
Sub Total	**2.00**	**1.50**	**1.50**	**1.90**	**2.50**	**2.80**
TOTAL	**38.00**	**38.00**	**40.00**	**41.00**	**42.00**	**42.00**

2021391442

Source: https://www.industrydocuments.ucsf.edu/docs/qfhm0000

Computer Applications Division
(Direct and Support)

		Current	1990	1991	1992	1993	1994
Strategic Goal No. 1							
Operations Support	(S)	3.85	3.60	3.70	3.50	3.85	3.70
Project Tomorrow	(D)	0.10	0.10	0.10	0.10	0.10	0.10
Project Tomorrow	(S)	0.35	0.45	0.65	0.80	0.65	0.40
Reduced Density Rod	(S)	1.35	--	--	--	--	--
Optical Processing	(S)	0.50	0.70	0.70	0.55	0.55	0.60
Tamper Evident Pkg.	(S)	--	0.05	0.10	0.15	0.10	0.05
Project Natural	(S)	0.05	0.10	0.05	0.05	0.05	0.05
2nd Generation DIET	(S)	0.40	1.00	0.95	0.90	0.95	0.95
ART Support	(S)	3.15	2.55	2.05	1.75	1.10	1.10
Environmental Issues	(S)	0.25	0.40	0.45	0.60	0.70	0.75
Cast Sheet RCB	(S)	--	0.65	0.70	0.75	0.65	0.65
Sub Total		**10.00**	**9.60**	**9.45**	**9.15**	**8.70**	**8.35**
Strategic Goal No. 2							
Project Delta/Sigma	(S)	2.75	2.90	3.20	3.40	3.30	3.25
Project ART	(S)	1.90	1.75	1.45	1.40	1.35	1.30
TSNA	(S)	1.40	1.40	1.50	1.45	1.05	0.85
LBA	(S)	1.30	1.35	1.35	1.55	1.70	1.80
Selective Filtration	(S)	0.10	0.15	0.20	0.25	0.25	0.30
Supercritical Tech.	(S)	0.50	0.70	0.95	0.95	1.25	1.30
Sub Total		**7.95**	**8.25**	**8.65**	**9.00**	**8.90**	**8.80**
Strategic Goal No. 3							
Reduced Sidestream	(D)	0.30	0.30	0.30	0.30	0.30	0.30
Reduced Sidestream	(S)	2.85	2.75	2.45	2.35	2.25	2.15
Project Ambrosia	(S)	0.45	0.45	0.30	0.10	0.10	0.05
ETS	(S)	0.30	0.55	0.55	0.45	0.20	0.20
Project PACT	(S)	0.55	0.30	0.35	0.25	0.25	0.25
Sub Total		**4.45**	**4.35**	**3.95**	**3.45**	**3.10**	**2.95**
Strategic Goal No. 4							
Menthol	(S)	0.50	0.40	0.55	0.55	0.60	0.60
Low Tar/High Flavor	(S)	0.85	0.75	0.90	0.90	0.95	0.95
Domestic Products	(S)	1.00	1.25	1.60	1.90	1.80	1.80
Filter Research	(D)	0.30	0.30	0.10	0.10	0.10	0.05
Filter Research	(S)	0.50	0.50	0.55	0.65	0.55	0.65
Sub Total		**3.15**	**3.20**	**3.70**	**4.10**	**4.00**	**4.05**
Strategic Goal No. 5							
Intn. Products	(S)	2.10	2.10	2.20	2.40	2.55	2.65
TMCI BL Processing	(S)	0.10	--	--	--	--	--
Red. Tar & Nicotine	(S)	0.05	0.05	0.05	0.05	0.05	0.05
Filter Research	(S)	0.25	0.30	0.30	0.30	0.35	0.35
Sub Total		**2.50**	**2.45**	**2.55**	**2.75**	**2.95**	**3.05**

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Strategic Goal No. 6

Combustion Research	(S)	0.15	0.15	0.35	0.55	0.55	0.65
Flavors	(S)	0.55	0.60	1.00	1.20	1.30	1.35
Aerosols	(S)	0.25	0.20	0.25	0.20	0.25	0.25
Selective Separation	(S)	0.15	0.25	0.30	0.40	0.55	0.60
Consumer Test. Res.	(S)	0.40	0.45	0.50	0.50	0.50	0.60
Measurment & Sensing Physical & Chemical Characteristics	(S)	0.15	0.20	0.25	0.35	0.55	0.40
Biological	(S)	0.30	0.30	0.40	0.45	0.60	0.70
Computer Systems	(D)	2.70	2.70	3.30	3.50	3.50	3.50
Computer Systems	(S)	0.30	0.30	0.35	0.40	0.40	0.40
Basic Analytic Res.	(S)	--	--	--	--	0.15	0.35
Sub Total		**4.95**	**5.15**	**6.70**	**7.55**	**8.35**	**8.80**
TOTAL		**33.00**	**33.00**	**35.00**	**36.00**	**36.00**	**36.00**

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Technical Information Section
(Support)

	Current	1990	1991	1992	1993	1994
Strategic Goal No. 1						
Operations Support	1.40	1.30	1.30	1.30	1.40	1.40
Project Tomorrow	0.10	0.20	0.25	0.30	0.25	0.15
Reduced Density Rod	0.55	--	--	--	--	--
Optical Processing	0.20	0.25	0.25	0.20	0.20	0.25
Tamper Evident Pkg.	--	--	0.05	0.05	0.05	--
Project Natural	--	0.05	0.05	--	--	--
2nd Generation DIET	0.15	0.35	0.25	0.35	0.35	0.35
ART Support	1.25	1.00	0.75	0.65	0.40	0.40
Environmental Issues	0.10	0.15	0.15	0.20	0.30	0.30
Cast Sheet RCB	--	0.20	0.25	0.25	0.25	0.25
Sub Total	**3.75**	**3.50**	**3.30**	**3.30**	**3.20**	**3.10**
Strategic Goal No. 2						
Project Delta/Sigma/Beta	1.10	1.10	1.10	1.25	1.25	1.20
Project ART	0.70	0.70	0.50	0.50	0.50	0.50
TSNA	0.50	0.50	0.50	0.55	0.40	0.30
LBA	0.50	0.55	0.55	0.60	0.65	0.65
Selective Filtration	0.05	0.05	0.10	0.10	0.10	0.10
Supercritical Technology	0.15	0.25	0.35	0.35	0.45	0.50
Sub Total	**3.00**	**3.15**	**3.10**	**3.35**	**3.35**	**3.25**
Strategic Goal No. 3						
Reduced Sidestream	1.05	1.00	0.85	0.95	0.85	0.85
Project Ambrosia	0.15	0.15	0.10	0.05	0.05	0.05
ETS	0.10	0.20	0.20	0.20	0.05	0.05
Project PACT	0.20	0.10	0.10	0.10	0.10	0.10
Sub Total	**1.50**	**1.45**	**1.25**	**1.30**	**1.05**	**1.05**
Strategic Goal No.4						
Menthol	0.20	0.15	0.15	0.20	0.20	0.25
Low Tar/High Flavor	0.30	0.30	0.30	0.35	0.35	0.35
Domestic Product Support	0.35	0.45	0.55	0.70	0.70	0.65
Filter Research	0.20	0.20	0.20	0.25	0.20	0.20
Sub Total	**1.05**	**1.10**	**1.20**	**1.50**	**1.45**	**1.45**
Strategic Goal No. 5						
International Product Support	0.75	0.80	0.80	0.90	0.95	1.00
TMCI BL Processing	0.05	--	--	--	--	--
Filter Research	0.10	0.10	0.10	0.10	0.15	0.15
Sub Total	**0.90**	**0.90**	**0.90**	**1.00**	**1.10**	**1.15**

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Strategic Goal No. 6

Combustion Research	0.05	0.05	0.15	0.20	0.20	0.25
Flavors	0.20	0.20	0.35	0.45	0.50	0.50
Aerosols	0.10	0.10	0.10	0.10	0.10	0.10
Selective Separations	0.05	0.10	0.10	0.15	0.20	0.20
Consumer Test. Res.	0.15	0.15	0.15	0.20	0.20	0.25
Measurements & Sensing	0.05	0.10	0.10	0.15	0.20	0.20
Biological	0.10	0.10	0.15	0.15	0.25	0.25
Computer Systems	0.10	0.10	0.15	0.15	0.15	0.15
Basic Analytical Research	--	--	--	--	0.05	0.10
Sub Total	**0.80**	**0.90**	**1.25**	**1.55**	**1.85**	**2.00**
TOTAL	**11.00**	**11.00**	**11.00**	**12.00**	**12.00**	**12.00**

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Appendix J

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